THE PROBLEMS OF PERCEPTION

Muirhead Library of Philosophy

R. J. HIRST

LONDON: GEORGE ALLEN AND UNWIN
NEW YORK: THE MACMILLAN COMPANY

This book offers a comprehensive survey of the problems of perception, paying special attention to those set by the causal processes involved in perceiving, by the subjective conditioning of what is perceived, and by the occurrence of hallucinations. After a critical examination of the main current attempts at a solution, including those made by recent 'linguistic' or 'analytical' philosophy, there is developed an original explanatory theory based on a restatement of the Double Aspect Theory of the relation of mind and body.

Although intended primarily for students and teachers of philosophy, the book should appeal also to the intellig[illegible] layman: psychologists and neurologists should f[illegible]d of particular interest its discussions of the philosophical questions their studies raise.

The author has been a Lecturer in Logic at Glasgow University since 1949, and has published articles on perception and philosophy of science in philosophical journals.

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An admirable statement of the aims of the Library of Philosophy was provided by the first editor, the late Professor J. H. Muirhead, in his description of the original programme printed in Erdmann's *History of Philosophy* under the date 1890. This was slightly modified in subsequent volumes to take the form of the following statement:

'The Muirhead Library of Philosophy was designed as a contribution to the History of Modern Philosophy under the heads: first of different Schools of Thought—Sensationalist, Realist, Idealist, Intuitivist; secondly of different Subjects—Psychology, Ethics, Aesthetics, Political Philosophy, Theology. While much had been done in England in tracing the course of evolution in nature, history, economics, morals and religion, little had been done in tracing the development of thought on these subjects. Yet "the evolution of opinion is part of the whole evolution".

'By the co-operation of different writers in carrying out this plan it was hoped that a thoroughness and completeness of treatment, otherwise unattainable, might be secured. It was believed also that from writers mainly British and American fuller consideration of English Philosophy than it had hitherto received might be looked for. In the earlier of series books containing, among others, Bosanquet's *History of Aesthetic*, Pfleiderer's *Rational Theology since Kant*, Albee's *History of English Utilitarianism*, Bonar's *Philosophy and Political Economy*, Brett's *History of Psychology*, Ritchie's *Natural Rights*, these objects were to a large extent effected.

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The need which Professor Muirhead stressed is no less pressing today, and few will deny that philosophy has much to do with enabling us to meet it, although no one, least of all Muirhead himself, would regard that as the sole, or even the main, object of philosophy. As Professor Muirhead continues to lend the distinction of his name to the Library of Philosophy it seemed not inappropriate to allow him to recall us to these aims in his own words. The emphasis on the history of thought also seemed to me very timely; and the number of important works promised for the Library in the near future augur well for the continued fulfilment, in this and other ways, of the expectations of the original editor.

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PREFACE

The philosophical problems of perception arise mainly because our traditional common-sense notions clash with the factual evidence concerning not only the occurrence of illusions and hallucinations but also the essential role played by complex causal and psychological processes in perceiving. One consequence is that the problems cannot be adequately dealt with by linguistic or conceptual analysis, but require examination of this evidence and the construction of a comprehensive theory to interpret it. This I attempt, offering first a critical examination of various philosophies of perception and then, more positively, a general explanatory hypothesis which I develop against the background of the whole relation of mind and body. Another consequence of the source of these problems is that neurologists and psychologists encounter them as they reflect on the significance of their work; they often today put forward versions of the traditional Representative Theory and I devote careful attention to their views. I assume no previous knowledge of philosophy or science on the part of the reader, and, complex and difficult as the subject is, I have tried to make my discussion sufficiently clear, and yet at the same time sufficiently thorough, to be of value to serious students; and I hope that this book will also be of interest to professional philosophers, particularly in its more constructive second half.

I am greatly indebted to Professors H. H. Price, C. A. Campbell and H. D. Lewis for reading the typescript and for offering encouragement and good advice together with many helpful comments on points of detail; I am very grateful to Miss M. J. Levett also for undertaking the laborious task of reading the proofs.

Some of the ideas and arguments here presented were first outlined in my article 'Perception, Science and Common Sense' in *Mind*, 1951, and in my contribution to the symposium on 'Sensing and Observing' in the *Proceedings of the Aristotelian Society*, Supplementary Volume XXVIII, 1954; I wish to thank the Editors concerned for permission to reproduce material from these earlier papers.

R. J. H.

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CHAPTER ONE

INTRODUCTORY SURVEY

Surprise is often expressed at the suggestion that our perception of the external world presents serious problems for anyone, philosopher or layman, who wishes to take an intelligent interest in the nature and faculties of human beings. Perception, and by that is meant seeing, hearing, touching, tasting and smelling, seems too straightforward and immediate to provide theoretical difficulties. We just open our eyes and see the familiar world and its objects—a simple effortless procedure which reveals to us what is there and gives us knowledge of its characteristics. Admittedly errors occur, but they are well understood and scientifically explained, and we know how to correct or allow for them. Yet most philosophers have rejected this supposed simplicity and certainty: they have impugned the evidence of our eyes and ears and thrown doubt on the empirical knowledge we seem to possess, indeed have claimed that the perceptual world is mere appearance and sought a superior realm of being beyond it; and even if nowadays less ambitious they still produce complex theories of perception prolific of strange entities—impressions, sense-data, sensibilia or physical occupants.

Our first task must then be to explain this philosophical approach to perceiving and show how but a little study of the operation of the senses leads to intractable problems and fanciful theories. This explanation seems all the more necessary in view of recent trends in philosophy, for it has been suggested not only that the structures of metaphysics rest on shifting sands of error, but even that the very perplexities which have engaged philosophers for centuries are mere pseudo-problems engendered by misconceptions about the logic of our language, so that if we attend to the subtleties of our use of words our difficulties will melt away. Or again we may be told that rival philosophical theories are merely alternative languages for the expression of the facts of perception on which we are all agreed.

These claims may well induce or confirm complacency in the layman: he will feel that he was right after all, perception is

straightforward, the world is exactly as we see it, and the philosophers of the past have simply raised a dust and then complained they could not see. But whatever the practical results of this new approach it does not come to grips with the philosophical problems of perception. Even if we are all agreed on the facts of perception—a strangely optimistic supposition—it is not so much their statement as their interpretation which is at issue. We require a theory which will cover all the facts systematically, showing their significance and inter-relation, which will answer the questions traditionally and justifiably raised, and which will reconcile customary belief, psychological analysis and scientific findings. As this task has normally been undertaken by philosophers or at least raises many of the problems they have always sought to solve, there seems no reason for denying that it is a philosophical one. Nor is it a shadow battle with pseudo-problems: for as ordinary language is shaped by or reflects common-sense notions about the nature of things, to show that certain perplexities 'dissolve' when due attention is paid to its logic is simply to show that they do not arise for common sense, untutored and unscientific as that may be. Thus the essential point is missed that the problems of perception are problems largely because a study of the psychology and physiology of perception and of the characteristics of illusions and hallucinations seems to call for a radical revision of the plain man's assumptions.

Before this revision can be considered, however, it is necessary to be quite clear what these assumptions are, for the usual statements of Naïve Realism, the alleged creed of the plain man, are not at all fair to them. To be fair we must render explicit and definite what is normally but dimly appreciated, so that the formulation which follows may at first seem far removed from what the plain man would say; but further consideration should show that it does represent what is involved in a common-sense view.

First, it is believed that we live in a world of persons, animals, plants and material things, and that perceiving is the way we find out about this world and its contents. More formally: each of us is a member of a common spatio-temporal system of interacting and enduring entities, and perceiving is a relation between a person and other entities by which he discovers their nature and characteristics. An important corollary is that the objects of perception—these

other entities—are 'public' or 'interpersonal', by which I mean that they can be perceived by different persons at once, can be photographed or recorded, and so are in a sense distinct from, independent of and external to any one percipient; they are also neutral between the senses, i.e. may be seen, heard and touched by the same person at the same time. Admittedly we may perceive many things which we should not class among such entities, e.g. shadows, reflections, accidents and noises, but they are likewise public and can be fitted into the system as patterns on the surfaces of such entities or as events involving them or occurring in them. This view of a person as one entity in and interacting with a world of public entities which he perceives I shall henceforth refer to as the 'publicity assumption'. It is fundamental to the common-sense view and is particularly important in that 'publicity' is the main differentia of objects of perception, distinguishing them from otherwise very similar dream or mental images.

Secondly, perceiving seems to be a straightforward confrontation or direct awareness, a simple looking or hearing and so on. But even at an unsophisticated level there are qualifications to be made to this. For we all admit that things are not what they seem, that we see clearly or dimly, hear distinctly or indistinctly, or get good or poor views of things—which might be expressed by saying that though perceiving is a simple relation between subject and object it is nevertheless a variable one. This is felt to present no problem, partly because other relations vary also, e.g. we may eat quickly or slowly and cut bread clumsily or neatly, and partly because perceptual variations can easily be explained by poor sight, distance or some similar factor. The explanations are not examined sufficiently for the simple straightforwardness of perceiving to be doubted—indeed a philosophical version of it, which I shall call the 'immediacy assumption', has been preserved at all costs by some thinkers.

Thirdly, it is held that by perception we can ascertain the real nature and characteristics of most of these other entities. Although science may have caused some doubt about this, its findings depend on the reliability of a wide range of perceptions. Several acts of perceiving, with checks and tests, may be necessary for certainty; but that can be attained, and errors in perceiving are thus only a practical difficulty.

Almost all these points have been denied at some time or other

by philosophers. It has been claimed that perceiving is highly complex, or that it is so direct and immediate that apparent variations in its quality are really variations in its object; that it is minds that perceive; that the objects of perception are private not public, or are mental, so that we are never directly aware of public physical objects but always of intermediate private ones; that we can never with certainty or even with any probability discern the qualities of real entities. What then are the difficulties in the common-sense assumptions which have led almost every thinker to reject them?

Traditionally the trustworthiness of the senses as a source of objective knowledge has been the chief target of philosophers; a study of the errors and relativity of perception has convinced them of its unreliability. Perceptual errors are common enough, for we have all at some time mistaken one thing or person for another, been deceived by imitations, thought we heard the postman, or had the illusion of movement in a stationary train; while the vivid dream, indistinguishable at the time from reality, is a commonplace. And even if we have not ourselves experienced the more spectacular cases, there is ample evidence of their occurrence—of mirages, hallucinations, the apparitions of *delirium tremens* or the feeling of pain in the toes of an amputated leg. These phenomena have been dwelt on at length to induce students to agree that, as we are always liable to be deceived by perception, it can give us no *certain* knowledge and we must turn to some other recommended source of truth, such as rational intuition.

Such arguments cut much less ice nowadays, when even the sympathetic expositor of Plato and Descartes tends to be defending counsel rather than evangelist, and I do not propose to make much use of them against the common-sense assumptions; the frequency and scope of such errors have been greatly exaggerated, while some of the arguments based on them are fallacious, and the alternative sources of knowledge seem in worse case. The discovery of non-Euclidean geometry and modern investigations into the foundations of mathematics have led most philosophers to reject the claim of mathematical reason and intuition to give us certain knowledge of the world. Once one is thus disillusioned the defects of perception seem much less. Hence while one may admit that it is not absolutely certain that our perceptual judgments are true, even when thoroughly tested and checked (a necessary admission,

for there is always some possibility, however slight, 'logical' or theoretical, that they are tainted by illusion and hallucination), this would seem to be a qualification to the common-sense view of perception, rather than its overthrow. Common sense will always admit, if pressed, that all human judgments are fallible, but may protest that to dwell on this is pedantry or like the practice of putting 'D.V.' on notices. Our well-tested perceptual judgments are in themselves highly probable and are the best hope of knowledge we possess; they are so interlinked and mutually supporting that to abandon any important one would be to jeopardize them all—and it is impossible to conceive what set of beliefs could then be confidently held about the world.

However, even if one accepts this answer, the sceptical arguments have been too important to be dismissed without more ado, and an attempt will be made to do justice to them in my discussion of a recent defence of the absolute certainty of perception (Chapter V, § 5) and, to a lesser extent, in my criticism of the argument for sense-data from differential certainty (Chapter II, § 3).

Illusions and hallucinations present a further problem for common sense, one which though less widely canvassed seems more serious. Can the ordinary notion of perception, however admirable as an account of normal cases, explain what is seen or heard or felt by those who experience these phenomena, whether or not they are actually deceived by them? In looking at a stick partly in the water we clearly seem to see a bent stick—but the actual stick is straight, so what do we see? Similarly a man with double vision 'sees' two candles when there is only one there—what then does he see two of? Snakes crawling up the bedpost frighten the drunkard, but as they are not real, what are they and how related to the real bedpost? Linked with these puzzles is the age-old problem of dreams—how is it that their scenes may be so vivid and realistic, and seem to ape perception?

To generalize, there are many cases in which people seem to perceive but cannot be entering into some relation with public physical objects by which they discover their real nature. Either there are no objects of the required type there, no snakes or second candle, or they see the object as possessing properties it does not possess. There is usually nothing in the experience itself to show that it is not a genuine perception and it is only from other evidence that we question it. Many theorists have in fact been so impressed

by the similarity of the experience in perceptions, illusions and hallucinations that, regarding the experience as of prior importance, they have claimed that they are all equally perceptions; a corollary of this being that it is not a requirement of a perception that it should reveal to us any public object. To maintain the contrary common-sense assumption it will be necessary to explain how there can be experiences which are subjectively indistinguishable from perceptions but are not perceptions at all.

Similar difficulties arise from the relativity of perception, the fact that the qualities of objects perceived vary with the position and subjective state, mental or physical, of the percipient. Green mountains look blue in the distance and parallel railway lines seem to meet, while from well at the side a square object may look diamond-shaped or a round one elliptical. The same water will feel warm if you are cold or cool if you are hot, while drugs like mescaline will make objects seem to have brilliant colours and bizarre shapes; jaundice affects the seen colours of things and a hangover or a cold their taste and smell. The conclusion traditionally drawn from such cases was that we cannot directly grasp the real intrinsic qualities of things by the senses. If an object looks red and square to me here but grey and diamond-shaped to a colour-blind man over there, then it cannot be both red and grey, square and diamond-shaped—that would be self-contradictory—and one at least of the pairs of colours and shapes must be subjective, be a private experience of him or me and not intrinsic to the object; and as there is nothing in the experiences themselves to show one is subjective and the other not, perhaps both are—i.e. the one object causes different private experiences in the different observers. This conclusion was strengthened by considering in what circumstances perceived qualities vary. They change with, and so are conditioned by, the position of the percipient, the nature of intervening media, and the state of his nerves and sense organs. As therefore an object's colour, warmth and taste depend on and are part products of factors quite independent of the object, they cannot be intrinsic qualities of it.

These arguments have had a wide following, at least as applied to certain perceptual qualities. They are present in embryo in Greek philosophy, they convinced Newton and Locke, and they are found persuasive by modern scientists, e.g. Eddington who

concludes that colour is mere 'mind-spinning'. But if they are valid they clearly call for a revision of common-sense notions of perception. If colours, sounds, tastes and so on are simply private experiences, then to a large extent in perceiving we are not aware of the real intrinsic characteristics of public physical objects; we are merely aware of our reactions to them. We may ask, how then do we discover these properties, by science, intuition or what? And so we are well launched on the sea of philosophy. If the common-sense view is to survive, it must refute these arguments from the relativity or subjective conditioning of perception, and must find an explanation of the phenomena consistent with its initial assumptions. It is a serious problem which, unlike the first argument from illusions and hallucinations, cannot be side-stepped by qualifying the original claim, for it is normal perception which is being called into question, not our defences against occasional errors.

The sceptical conclusion drawn from the relativity of perception is often supported by other considerations from science. First, the relativity is increased if we use scientific instruments; blood seems a uniform red, but if we look at it through a microscope it seems to consist mainly of yellowish particles in a neutral-coloured fluid. Presumably the microscope gets nearer to the truth, but might not a better one reveal something else? At any rate the original uniform colour must be subjective reaction not objective property. Secondly, the physicist's conclusions about the fundamental characteristics of matter seem to contradict perception. One is told, for example, that a bar of chocolate is made up of various atoms and that each of those consists of a small central nucleus and a certain number of electrons rotating in various orbits: thus, like a miniature solar system, the atom consists largely of space. For perception then, the bar is solid, brown and at rest on the table, and it possesses a characteristic odour and taste; on the other and supposedly truer account (the unavoidable oversimplifications of the version given here being immaterial), it is wholly composed of elements which have neither colour nor smell nor taste and are neither solid nor at rest. If then according to science colour, smell, taste, solidity and rest are not really present in the physical object, such perceived qualities must be merely subjective, and the senses are no reliable guide to reality. Physical objects differ radically from what we see and hear

and feel, and the plain man's view of perception is revealed as naïve and false. This specious argument from science will require careful assessment. Despite logical errors it has had a wide vogue, and the facts on which it is based are not easy to explain on the common-sense assumptions about perception.

These assumptions are threatened by another scientific consideration, the time-lag argument. It is well known that light travels at a finite speed, so that when we look at the star Sirius, for example, we are seeing it as it was nearly nine years ago, the light that strikes our eye having taken all that time to reach us. Hence it is quite possible that though we see Sirius tonight it actually exploded and disintegrated in 1955; we are not having an hallucination and yet we see what no longer exists. Similarly even if the sun exploded five minutes ago we should not yet see or feel the catastrophe but should still see the sun unimpaired. Or again one may hear the sound of a distant gun being fired long after one sees the flash. Although the huge distances separating us from the stars makes them an extreme example, there is a slight, though normally indiscernible, time-lag in all perception. Hence the common-sense assumptions are again attacked: perceiving cannot be a simple direct confrontation, but is a process, occasionally a lengthy one, and for this reason it is unreliable in that we may see an object after it has ceased to exist.

The special case of noticeable time-lag serves as an introduction to one of the most intractable difficulties in the description and explanation of perception. For once we pass from the realization that perceiving is or involves a process to a detailed examination of the chain of events which enter into it, our everyday notions seem further and further from the truth. Seeing requires the travelling of light rays from the object to our eyes, where they cause patterns of excitation on the retina; thence impulses pass up the optic nerve and set up brain activity, whereupon we see the object. A similar process is required for hearing, touch and so on. Now such a causal chain is a *necessary* condition of normal perceiving, since if it is interrupted, e.g. by damage to the sense organ, the sense is lost; and the later stages of it seem to be a *sufficient* condition of perceiving of a kind, for if we press the eyeball we see coloured patterns, if we have catarrh in the ear we hear noises, while electrical stimulation of the appropriate parts of the brain causes similar sensations. (If the results are cruder than

normal perception so is the stimulus.) It is therefore difficult to resist the conclusion that in perceiving we are confined to a private world of sensations, which are normally caused by external objects but may be due to intrusive activation of the causal chain. This closely accords with the conclusion of earlier arguments that colours, sounds and smells are not intrinsic properties of external objects, but are subjective experiences caused by them. It is confirmed by the study of nerve impulses which suggests that they are the same in character for sounds and colours, differing only in destination and starting-point, and so cannot literally convey these qualities. Moreover the possibility that the excitation of the latest stages alone of the causal process may produce the same results in sensation as when the process starts with the external object, appears to offer a simple explanation of the verisimilitude of dreams and hallucinations. They are realistic because the brain activity is the same as in perception despite a different ultimate cause.

These results have been embodied in the Representative Theory, that when we think we are directly aware of public external objects and their properties, we are merely experiencing their remote effects and are aware only of a subjective world of private sensations which represent external objects. And yet if this is so, how did we ever obtain our knowledge of the external physical world and its characteristics or ascertain the data on which this account of the causal chain is based? The theory seems to refute itself, for if it were true we could not discover the facts on which it is based; yet it seems plausible enough, and how else can we explain the scientific findings on which it rests? This seems to me to be the chief problem facing any theory of perception.

Much of the importance and difficulty of this problem lies in its close association with a larger issue which is as vital as it is perplexing, namely that of the relation between mind and body. Perception seems to be a process involving both and, what is more, a transition from one to another. Philosophers and scientists have long been perplexed as to how the electro-chemical activity in the brain can be closely linked with, and be a necessary condition of, the mental experiences involved in awareness of external objects. For a proper account of perception, then, we must consider the wider mind/body problem. Indeed the perplexity we have just noted, and the way the promising Representative Theory

appears to be self-refuting, may be due to an inadequate theory of the mind and its relation to the brain.

But even the mental side of perceiving has its own problems. It is not simple sense-experience, the mere having of sensations, but involves other mental processes as well. For example, a moment's reflection will show how often perception is dependent on attention: if we look closely and carefully we notice all sorts of detail which otherwise we should not, while preoccupation will make us miss gross features of an object before us. Our interests and training similarly affect what we notice—contrast what an architect and a naturalist will observe in the same scene—; whereas familiarity will make an object look different from the way it looked when it was new or strange, as can be confirmed by pictures of everyday things from unusual angles. Our fears and expectations are also responsible for many errors, as when the anxious parent mistakes the sound of the wind for a child's cry. Psychologists have devised many experiments to try to assess the scope and influence of these mental factors, and have brought to light unsuspected phenomena like object constancy or have raised difficult questions about stereoscopic vision, so that controversy still rages. Similar questions have long been discussed by philosophers too: perceiving has been variously described as a synthesis of atomic sensations, a 'taking for granted', a judgment, a subconscious inference, a skill, an interpretation of sensory data, and an unanalysable mode of consciousness. Agreement has not been made any easier by the tendency of philosophers and psychologists to discuss these topics in haughty isolation from each other, though even with perfect liaison a definitive solution would be extremely difficult to obtain. But at least we can say that the presence of these non-sensory elements in perceiving demands radical amendment of the common-sense notion that perception is simple direct confrontation.

Such is a brief sketch of the theoretical perplexities presented by perception. Some are primarily epistemological questions concerning the trustworthiness of the senses and their adequacy as a means of discovering the intrinsic properties of physical objects; others are primarily problems of explanation, showing the need for a comprehensive theory which will account simply and economically for the diverse facts of perception, its causation, and the cognate phenomena of dreams and mental images. But in either case the fundamental point is that they arise because the

observational and experimental evidence seems to clash with common-sense assumptions. Illusions, hallucinations, the relativity of perception, the scientific account of matter, the sometimes lengthy chain of causation in perceiving, the apparent interaction of a radically dissimilar mind and body, the data on the mental factors amassed and variously interpreted by psychologists—all these appear to threaten common sense. Hence one cannot solve perceptual problems by plotting 'the logical geography' of the concepts involved or by enquiry into how we use words. At best that can only elucidate the common-sense notions; but it is their defence or amendment that we require if philosophy is not to be dismissed as unscientific, out of date and blind to the results of observation and experiment.

This then is the task before us.

CHAPTER TWO

THE ARGUMENTS FOR SENSE-DATA

I. INTRODUCTION

The usual philosophical approach to the problems outlined has been to propound a dualism of objects and/or levels of awareness. We are urged to distinguish between (i) public physical objects, such as tables and chairs, cabbages and kings (or rather kings' bodies), and (ii) the immediate data of experience, colours, shapes, sounds, smells and so on, which have been given various names—'ideas', 'impressions' or 'representations' in the older theories and 'sensations', 'sense-data' or 'sense-contents' in the newer ones. Our awareness of these data is held to be direct and intuitive, while that of physical objects is indirect and mediate. There is an important difference of emphasis within the dualist theories: the older Representative Theory regarded perception as direct awareness of ideas, and the knowledge of the external world to which it is supposed to lead is so indirect and discursive as scarcely to merit the term 'awareness'; the modern Sense-datum Theory agrees with common sense that perception is awareness of public external objects, but tries to distinguish an immediate awareness (sensing) within it in such a way as not to destroy its observational character.

Despite the attractions of correct historical order, it seems better to discuss first the dominant modern theories. As it is a solution to the problems posed which is now being sought, the reader may well be impatient with the detail of past failures unless the latest answers have been shown to be inadequate. Furthermore the Sense-datum Theory makes a new start, and its appreciation does not require previous knowledge.

There are by now several variants on the original Sense-datum Theory. At first it was claimed, e.g. by Professors Moore, Broad and Price,[1] that sense-data were actual existents. A more recent linguistic version, advocated by Professor Ayer, is that

[1] G. E. Moore, *Philosophical Studies* and *Some Main Problems of Philosophy*; C. D. Broad, *Scientific Thought* and *The Mind and its Place in Nature*; H. H. Price, *Perception*.

'sense-datum' is not the name of a new kind of entity but is part of a more convenient terminology for discussing perception.[1] The second variant has been the explicit development of Phenomenalism and Sensibilism. Price's theory, for example, had held that material objects consisted of something more than sense-data and included a non-sensory 'occupant' responsible for causal properties, but these theories deny such unobservables and claim that physical objects can be analysed wholly into actual and possible, or sensed and unsensed, sense-data. There has been a tendency for the two variants to combine to produce Linguistic Phenomenalism, the analysis of statements about material objects into sets of statements about actual and possible sense-data.[1] In Chapters II and III we shall consider the view that sense-data are actual existents, taking in the main Price's *Perception* as our example since it is the latest and fullest statement of this position; the variants and their combination will be discussed in Chapters IV and V, §§ 1–2.

Four main stages can be distinguished in Price's theory: (i) In an initial analysis of the act of perceiving an attempt is made to show that on simple inspection one is forced to admit the existence of a 'given', that is of sense-data; the awareness of them, sensing, is defined and distinguished from 'perceptual consciousness', the state of mind in perceiving.

(ii) The arguments from illusion, hallucination and relativity are developed to dispose of the plain man's view of perception, here interpreted as the belief that the given is, and is known to be, part of the surface of material things. An explanation of these phenomena is offered in terms of sense-data, whose nature and points of difference from physical objects are further specified.

(iii) In a detailed analysis of perceptual consciousness we are shown what further mental activity is involved in it besides sensing: this varies from a 'taking for granted that sense-data belong to a material thing' to the settled assurance of this reached by a number of mutually confirmatory perceptual acts. This leads to a rejection, in favour of a more plausible alternative, not only of the plain man's view that perceiving is certain knowledge but also of the Representative Theory and of the Idealist claim that perception is judgment.

[1] A. J. Ayer, *Foundations of Empirical Knowledge* (henceforth referred to as *FEK*).

(iv) An account of the important relation of 'belonging to' between sense-data and material things and of the relations between sense-data belonging to one thing. It is maintained that a material thing consists of a 'family' of sense-data together with the causal 'physical occupant', and this involves showing that Phenomenalism (in its non-linguistic form) is inadequate.

I propose to discuss the first two stages in detail, and hope to show that they establish neither the existence of sense-data nor the falsity of the common-sense view and are themselves open to serious objections. If these criticisms are correct they cut the ground from under the remainder of the theory; but the last two stages cannot be ignored as they contain much of independent value. The third therefore will be considered in Chapter VIII and points from the fourth in Chapters III–V.

2. THE INITIAL ANALYSIS

For this important analysis Price takes a situation in which we see (or seem to see) a tomato, and after asking what it is to see it, continues:

'When I see a tomato there is much that I can doubt. I can doubt whether it is a tomato that I am seeing, and not a cleverly painted piece of wax. I can doubt whether there is any material thing there at all. Perhaps what I took for a tomato was really a reflection; perhaps I am even the victim of some hallucination. One thing however I cannot doubt: that there exists a red patch of a round and somewhat bulgy shape, standing out from a background of other colour-patches, and having a certain visual depth, and that this whole field of colour is directly present to my consciousness'. (*Perception*, p. 3).

He then adds that by 'directly present to consciousness' he means that consciousness of it is not reached by inference or any other intellectual process; this relation he calls 'being given' and what is given, e.g. the red round patch, he calls a 'sense-datum'. The mental attitude corresponding to being given is 'sensing'; it is referred to as 'acquaintance with sense-data' to indicate that it is an intuitive apprehension *of* something, as opposed to an intuitive apprehension *that* something is the case. Because it is indubitable apprehension sensing is also regarded as a form of knowledge, knowledge by acquaintance. Finally (p. 19) it is

claimed that the term 'sense-datum' is meant to be a neutral one, since the acceptance of the analysis does not commit one to holding that sense-data are mental or physical, private or public, substances or events. These are questions that have to be settled by subsequent argument; all that is clear so far is that sense-data are existents with which we are acquainted in every perceptual act. They are not of course confined to colour-patches; other examples would be noises of various kinds, smells, tastes, and tactual data such as the smooth resistant expanse felt on touching a table-top.

But despite this supposed neutrality, it appears from the developed discussion that we are already committed to two further points by accepting this initial account. First, it is claimed that we cannot doubt that there *exists* something red and round, but what does this existence amount to? Is the red datum distinct from and independent of us and our awareness in the way a tomato is, or is it more like a pain or feeling which has no independent being and cannot be distinguished from the having of it? Or has it an existence like that of dream or after-images, which, though not independent of the person having them, do seem to have a sort of otherness and to be distinguishable from the having of them? One could say that these are possibilities between which a decision has to be made later, and that its neutrality in this respect also is another advantage of the concept of sense-datum. But neutrality can be pushed too far and reach an unhelpful vagueness. Price does not hedge on this, however, and makes it clear on p. 44 that a sense-datum does not depend for its existence or any of its qualities on our being aware of it. He thinks that this follows from the very meaning of the terms 'acquaintance' and 'intuitive apprehension' which characterize sensing. Hence in accepting this opening account one is committed to an 'act/object' analysis of sensing which I shall discuss below (p. 32).

A second corollary is the unvarying excellence of sensing. The situation is put forward as a typical one, and it is held that in all cases of perceiving sensing occurs with the same character of intuitive apprehension. We must therefore infer that sensing never falls below this standard; it never fails to be knowledge, to be indubitable acquaintance—if it did it would not be sensing. This is confirmed by p. 149, where Price says that sensing 'exists in full perfection or not at all; it is an immediate "confrontation"

of the mind and sense-data, and admits of no degrees'. This is an example of what I call the 'immediacy assumption', the belief that perception is or contains an always immediate and intuitive, and so unvaryingly excellent, mode of awareness. This immediacy or confrontation characterizes the common-sense view as we have seen; it is attributed by Locke to our perception of ideas, and by the Sense-datum Theory to sensing (now regarded as an element within perceiving). In Price's work it is fairly explicit and so might more fairly be called the 'immediacy claim', but at times it works as an unrecognized assumption, as in his attitude to the argument from illusion. Such is the perfection of sensing that any indistinctness or lack of clarity in the total situation of sensing a red round patch must be attributed to the sense-datum not to the sensing. We do not sense indistinctly a red colour-patch; we sense clearly an indistinct red colour-patch. Those who accept this initial account may not realize that they are committed to this; but it is important as we shall see.

Some preliminary doubts may also be expressed concerning the concepts of 'sensing' and 'given' which are essential to this analysis. To regard sensing as knowledge by acquaintance is surely to propose an unusual form of knowledge. If we omit 'knowing how' as not relevant here, the two main kinds of knowing correspond to the distinction between *connaître* or *kennen* and *savoir* or *wissen*, namely 'be acquainted with' and 'know that'. But sensing fits neither: since it is non-intellectual, it is rightly said not to be the latter, while the former must be excluded because it is dispositional, or at least a state not a mental act, and is not uniformly excellent. One can know London when not seeing it or being aware of it, and can know it well or badly or even make mistakes when knowing it quite well. Indeed *savoir*-knowledge is held by many modern philosophers to be dispositional also, but we need not rely on that. As to the few occasions when the word 'know' is used of datable acts, e.g. 'I knew him (or it) at once', it then simply means 'recognize' or 'realize' and this does not fit sensing, for it implies an intellectual process of the type explicitly excluded. Nor are the other words used much help: 'apprehend', if not indicating an intellectual realization or understanding, is simply another word for 'perceive'; 'intuitive' or 'intuition', by derivation perception-words, suggest immediate realization, coming to know without inference, but they are normally so used

of knowledge of fact or truths, and intuition may always really be unconscious inference. One may suspect sensory knowledge by acquaintance as an unjustifiable conflation of the certainty and (possibly) non-dispositional immediacy of *savoir*-knowledge with the non-intellectual non-propositional nature of *connaître*-knowledge. But perhaps the certainty of the former depends on its being intellectual and being knowledge *that*.

Sense-data are also said to be 'given' or 'present to consciousness', and this relation is the converse of sensing. But what does 'given' mean? If it means 'what the person is conscious of', then it should be tomatoes or other public objects which are given. Normally we are aware only of such objects, and it needs a special effort of attention to distinguish red, round, bulgy somethings—without the effort we are not conscious of them. 'Given' also suggests 'not-chosen', and so we may speak of a given element in perception; for, although we can to some extent select what we see by turning our head, the fact that on looking at the table we see a book and not our breakfast may not be of our choosing. But the given in this sense is a scene of public objects.

The initial analysis suggests that two ideas are involved in the notion of 'given'. One is that of immediacy—the given is what we are aware of without intellectual processes. But in this sense it may be that nothing is given. Price has various arguments against this Idealist contention, but if they are acceptable nothing follows about the identity of the given; it may simply be physical objects —at least one may wonder why the supposed non-inferential consciousness must have different objects from ordinary perceiving. This may arise from the second idea, that of certainty; the given, the red round patch, is what we are certain of in a perceptual situation. But it is difficult to see why this certainty should be indissolubly linked with immediacy, for it seems to require an intellectual effort of analysis to decide what is certain in the perceptual situation, and hence to be certain of it. Indeed on reflection one may wonder whether we are or should be certain that there exists something actually red and round, as opposed to something merely looking it, or that these existents are not the same as material objects. When we ask these questions we find the initial analysis offers considerations in support of its claim; it is an argument as much as an analysis, and to evaluate it we may state it as an argument, one based on differential certainty.

3. THE ARGUMENT FROM DIFFERENTIAL CERTAINTY

Premisses:

(i) In a single perceptual act no one material thing is indubitably present; what we take to be a real tomato may be a fake, a reflection, or an hallucination.

(ii) A sensible existent (or sense-datum) is indubitably present, e.g. the red round datum in the tomato example.

(iii) (Suppressed). What is indubitably present cannot be identical with what is not indubitably present.

Conclusion:

The sensible existent or sense-datum is not identical with a real material thing. This may be generalized as: Sense-data are existents differing from material things (or physical objects).

Admittedly the conclusion is not explicitly drawn at the time, but it is clearly suggested and is henceforth taken as proved. Thus after defending the notion of givenness and making some terminological points, the author proceeds straight away to ask what is the relation of 'belonging to' between sense-datum and material thing; that the sense-datum may *be* the material thing is not considered, and the denial of this identity is essential to the Sense-datum Theory.

The first premiss must be accepted since we are concerned with a single act, not a series of tests; but the second is dubious, for, as we have seen, existence independent of the act of awareness is intended, and one would need correlation of a number of perceptions to make sure that the red datum was a distinct entity and not merely a content of experience like a feeling or after-image. Indeed Ayer and some other philosophers do not find it obvious or even plausible, from inspection of their sensory experience, that the red datum is a distinct existent independent of the act of sensing.[1] Instead of an 'act/object' analysis of sensing some propose an 'adverbial' one, claiming that 'I sense a red expanse' is strictly a statement about how I sense, which might be expressed

[1] See A. J. Ayer, *Language, Truth and Logic*, 2nd ed., p. 122, and *Philosophical Essays*, pp. 127–31. C. D. Broad in *Proceedings of the British Academy*, vol. 28, 1942, pp. 127 ff., advocates an act/object analysis for certain sense-data (or *sensibilia* as he calls them) and an adverbial one for others; cf. his *Scientific Thought*, pp. 254 ff.

by paraphrasing adverbially, 'I sense redly'. This can produce oddities, e.g. 'I sense triangularly' for 'I sense a triangular expanse'. Another way of putting the point is to say that in the sense-datum statements 'red expanse' or 'triangular expanse' is an internal accusative like 'blow' in 'I strike a blow', not an external one like 'man' in 'I strike a man'. The expanse cannot exist apart from the sensing of it any more than the blow can from the striking.

One's attitude to this controversy must depend on how the experience seems to oneself; I can but report that so far as seeing a tomato is concerned the act/object account seems the more plausible; the red round datum, if one can call the supposed tomato this, seems a distinct existent with visual depth and distance from the eye. (If after-images have similar depth they are nevertheless sensuously different.) One may perhaps be unduly influenced by belief that it is a tomato, but similar distinctness is apparent when one does not know what it is, e.g. sees something red on the hillside. Yet the adverbial analysis has greater plausibility when one passes to the other senses: sounds perhaps seem quite distinct existents, but tastes, and possibly smells, are difficult to regard as independent from the experiencing of them; and tactual data seem in many respects adverbial, e.g. feelings of pressure or resistance or warmth.[1] It would seem then that one cannot properly claim that it is certain or indubitable that sense-data can exist independent of the sensing of them, and this conclusion also throws doubt on the assertion that they are objects of intuitive apprehension.

One may also object to any extension of the second premiss to cover actual properties of the sensible existent. Thus it is claimed in the tomato example that the existent is in fact red and round, but strictly all we can say from a single perceptual act is that there is something red or at least red-looking, for the object may be some other colour and only be looking red in this light. It would no doubt be replied that this objection confuses sensible colour, the sense-given characteristic present to consciousness about which certainty is claimed, with physical colour, a public objective property. But normally when one speaks of 'sensible colour' one is speaking phenomenologically, i.e. is describing how

[1] These remarks apply only to phenomenological observation, of which attempts to describe sense-data are instances. As modes of normal perceptual consciousness, tasting and touching have an act/object character.

a thing looks without implying that it has or has not the quality in question, or is describing a scene without committing oneself as to what actual objects make it up. But to say that the sensible colour is an existent, that there exists a particular which is actually red and not just red-looking, is to go beyond phenomenology, beyond what is revealed in the experience itself; it seems rather to be a hypostatization of the look of the object.

The real weakness of the argument, however, lies in the suppressed third premiss. This is specious because if 'indubitably present' is taken as one term 'A' then it is merely a reformulation of the Law of Non-contradiction to say 'What is A is not identical with what is not-A'. But to treat 'indubitably present' as a term like 'green' or 'square' is to commit a type fallacy; there is no such simple property as 'indubitable presence', there is only 'presence', and the 'indubitable' belongs to the modality of the proposition, i.e. strictly one should say 'is not-indubitably present' instead of 'is not indubitably-present'. If then we substitute 'certainly' for 'indubitably' and 'possibly' for 'not-indubitably', we get 'What is certainly present is not identical with what is possibly present', and the plausibility vanishes; for if the red something is certainly present and a tomato possibly present, one can hardly say that therefore the red patch cannot be a tomato. It may perfectly well be a tomato, though we cannot be certain at the moment that it is. Similarly it may be certain that there is a car in the garage but uncertain whether it is a Morris or an Austin or some other make; but that does not mean it cannot be an Austin.

One should note the intrusive 'it' in these examples. The natural way to put the tomato example would be, 'I am indubitably aware of something red, but am uncertain whether it is a tomato or a fake or an hallucination'. There would then be no danger of concluding that the 'something red' cannot be a tomato as you have already allowed the possibility that it is. It is unfortunate that in an initial analysis Price departs from the normal description by dropping the 'it'; he says in effect 'I am indubitably aware of a red datum; I am not indubitably aware of a tomato', and this way of putting it does tempt one to the fallacious conclusion.

It might, however, be objected that the argument does at least show that the red sense-datum may not be a material thing (it may be

an hallucination), and so common sense is shaken and we are justified in distinguishing sense-data from material things. But this lesser conclusion 'some sense-data are not material things' relies on the dubious claim of the second premiss that a red *existent* is indubitably present. Moreover, to be justified in saying that this existent is a sense-datum we must know that the same kind of existent is present in all the possible situations (real tomato, fake, reflection, hallucination), otherwise the term sense-datum will be so vague as to be useless theoretically, and the conclusion will be the trivial 'some things are not material things'. It is only if we are certain of there being one definite kind of existent common to all the situations that we can argue from the contrast between this certainty and the uncertainty as to whether it is a material object. Let us then consider what we suppose the object to be in the different situations.

If we are seeing a real tomato then obviously the object of awareness is a material thing; as it is if it is a fake tomato or a picture of one, i.e. a piece of wax or cardboard, or part of a painted canvas or illuminated screen. Even if we are seeing a reflection in a mirror we should not be rushed into supposing that the object is something different from a material thing, viz. a reflection; it is the reflection *of a tomato*, and to avoid hypostatizing abstractions we should restate this by saying that it is the tomato reflected in a mirror that we see. It may be objected, the red round patch of colour we see in the mirror cannot be the tomato for that is in the bowl on the sideboard. But this is surely a naïve objection: the whole argument is meant to be convincing to common sense, and common sense can surely reply that the assertion was that the tomato was *reflected* in, not was *actually* in, the mirror, and if we are to build a theory on this we must take into account how reflection occurs; strictly it is the light rays from the tomato that are reflected by the mirror and so reach our eye *via* the mirror. So we are still seeing the tomato, only *via* the mirror instead of directly. We speak of seeing it *in* the mirror, but that is merely one of the many pre-scientific survivals in ordinary speech.

Admittedly in the fourth possibility, an hallucination, we cannot maintain that the object is the real tomato or another material thing, but can we say anything positive about it at this stage? The Sense-datum Theory wants to argue that in an hallucination

we should be aware of a red round existent, the same kind of object as in the other cases; but this is scarcely plausible if in all those situations we are aware of a material thing, while the hallucinatory object is admittedly not one.

I may here be accused of missing the point by bringing in extraneous considerations about the objects of awareness instead of concentrating on what is present to consciousness. The analysis is really phenomenological, and from that point of view it is clear that, whether we are perceiving material objects or having hallucinations, the same kind of thing is given to consciousness in each case, namely the red round patch. But the Sense-datum Theory did start with the discussion of what was seen, tomatoes or wax, etc., and once it has committed itself to saying that the object of awareness is red, not red-looking, and is an existent independent of our awareness of it, as opposed to an adverbial experience, then it has passed beyond phenomenology; it becomes open to the retort that in almost all cases the red existent is in fact a material thing, but that in a few it is an hallucination, something which looks similar but is in fact quite different. There is thus no ground for the claim that the red existent is the same sort of entity, viz. a sense-datum, in both perception and hallucination. This conclusion is reinforced if we accept one of the theories about hallucinations, that they are mental images confused with genuine perception; even the Sense-datum Theory holds that such images are not sense-data, and though it does so on phenomenological grounds, these grounds do not apply to eidetic imagery[1] or realistic dreams and so might not enable us to distinguish hallucinations if they were images.

To sum up: from mere inspection of our experience in a single perceptual act, the initial analysis can only claim that we are aware of what looks to be a red existent independent of us and our awareness of it. We cannot with certainty say that it is red or is independent, still less that it is an existent of the same type in both genuine perception and hallucination. Hence we cannot even argue the weaker conclusion that in perception we are aware of independent existents, sense-data, which may not be material things; while the stronger conclusion, that they cannot be material things, depends further on a faulty suppressed premiss.

The mistaken conclusions may be due to a confusion between

[1] Discussed, p. 41 below.

phenomenology, i.e. describing how the object looks without committing oneself about what it is, and epistemology, the attempt to say with certainty what sort of existent, if any, the object of awareness is. If we separate the two enquiries, then the more plausible answer to the first is, 'It looks like a red tomato', or, if preferred, 'like something red, round and bulgy with visual depth', though this is in some respects an amplification and in others an understatement; if it is clear from the context that we are saying what it looks like, then we can answer more shortly 'a red tomato' or 'a red round bulgy object', but this must not be mistaken for a statement of what it *is*. If we ask what sort of an existent it is we cannot confine ourselves to one perceptual act, we must correlate various perceptions in order to avoid a premature and unjustified answer. We should then normally conclude that it was a material thing, and occasionally that it was an hallucination; we should not say that in all cases it was an existent different from material objects, namely a sense-datum.

4. THE ARGUMENT FROM HALLUCINATION

I have devoted several pages to the initial analysis because it is important to resist from the outset the contention that sense-data exist and are different from material objects. This contention marks the point of departure from common sense, and once it is accepted the later developments follow comparatively easily. Its acceptance has been greatly encouraged by the Arguments from Illusion and Hallucination, which are thought to dispose of the 'Naïve Realism' of the plain man and further specify the nature of sense-data. They are concerned not so much with certainty as with the nature of what we are aware of in such phenomena and with the conclusions from the relativity of perception. As hallucinations are *prima facie* the most difficult for common sense to explain, we will discuss them first.

In these contexts an hallucination is an experience subjectively indistinguishable from genuine perception, but one in which what a person takes to be a physical object has no public existence or cannot plausibly be identified with any public object. Thus the snakes the drunkard 'sees' and the apparitions of delirium have no external physical counterpart. And if one mistakes a bush for a man in the twilight, that is merely an illusion or misperception;

but one could say it was an hallucination, when one seemed to see a man, if no bush or similar object was present or if the apparent source of the mistake was a patch of light or shadow grossly unlike a man.[1] The distinction is not clear-cut but is adequate for the present; it means that some phenomena which have been discussed as hallucinations must be classed as illusions. Thus mirages are really cases of refraction or reflection: the oasis seen in one is a real oasis, but owing to the refractive properties of layers of air at different densities, it appears to be very much nearer than it is. In the delirium of extreme thirst the traveller may have an hallucination of palm trees but that is not the same as the normal refractive mirage. Sometimes one seems to see in the desert not an oasis but water sparkling in the sunlight, and this kind of mirage is explained as reflected light looking like water shimmering in the distance.

We must also distinguish from hallucinations proper a group of phenomena which I call 'private sensa', namely after-images, spots before the eyes, and ringing in the ears. They are excluded because they are subjectively distinguishable from perceptions and are not taken to be public objects, at least after a test or two. For unlike physical objects they 'follow one around' in that they cannot be escaped by moving about or closing one's eyes or stopping one's ears, and they are wholly private and cannot be perceived by others; they are also sensuously different—thus after-images have a characteristic look and a characteristic way of projecting themselves on other things. Also in this group may be included some of the patterns of light one sees with closed eyes—only some, for others seem to be an external source of light seen through the eyelids.

The Sense-datum Philosophers claim that the occurrence of hallucinations refutes Naïve Realism, the view they attribute to the plain man. When expressed in terms of sense-data this view is that when I am perceptually conscious of an object, e.g. a tomato, I am aware of certain sense-data, red round patch, etc., and know that they are part of the surface of an existent physical object, in this case a tomato. ('I am perceptually conscious of X' might be glossed 'I perceive or seem to perceive X'; it is intended to avoid the normal implication of 'I perceive X' that X is actually present to the senses. See Chapter VIII, § 1.) But as in a hallucina-

[1] As in the 'triggered hallucinations' discussed, p. 42 and pp. 310 ff.

tion of a tomato no physical object exists to which the sense-data could belong as part of its surface, or in any other way, it is argued that Naïve Realism must be abandoned. We are then told that hallucinations are 'wild sense-data', which differ only from normal ones in that they do not belong to any material thing, and are not members of any 'family of sense-data'. To have an hallucination thus differs from genuine perceiving only in the relation or lack of relation of its sense-data to others; the perceptual consciousness, the sensing, and the intrinsic characteristics of the sense-data are exactly the same in both, otherwise we should not be deceived, but should by simple inspection be able to distinguish genuine and hallucinatory experiences. This gives us a clue to further properties of sense-data: in hallucinations such as those of the drunkard the sense-data are private to the percipient, for other persons do not 'see' the snakes or share the snake-like sense-data; they are also transitory compared to real snakes and do not bite, i.e. have no causal properties. They may seem to cause alarm, but strictly it is not the snake-like data but the sensing of them that does this. It is thus concluded that, as the genuine are like the hallucinatory in everything but wildness, all sense-data are private, transitory and without causal properties; in all this they differ radically from material things.

One's first reaction to this argument is probably to protest that it is unfair to saddle common sense with a peculiar theory like Naïve Realism. The objection is not that the plain man never speaks of sense-data, for philosophers may legitimately use technical terms to render ordinary thought precise, but that the term 'sense-datum' is 'theory-laden', so that to use it is to beg the question. If one does not accept sense-data as existents different from material things one is not likely to suppose them parts of the surfaces of the latter. Thus even if one admitted to seeing a red, round, bulgy shape, the common-sense view would be that it was the tomato, rather than that it was part of its surface. This is not a trivial point, for Professor Broad argues that the common-sense claim to see a bell (for example) cannot be literally true.[1] A bell cannot be a 'constituent of the perceptual situation' because we only see part of the bell for part of its history. On similar lines it might be said that the red round shape cannot be

[1] *The Mind and its Place in Nature*, p. 149. Cf. G. E. Moore, *Some Main Problems of Philosophy*, pp. 33–4.

the tomato, at best it is only the front part of it. But this would be a mistake—to say we see the front, or top, of an object is to particularize, not to deny that we see the object. There is no reason to insist that to see something we must see all of it at once, any more than to claim that we do not eat our dinner unless we swallow it all at once. This partitive character of seeing is shared by other actions, e.g. we dive into (part of) the sea, or visit (part of) London.

But even if we amend Naïve Realism to the view that the object of awareness in perceptual consciousness is always a public object, it would still seem to be refuted by hallucinations—in these the red round shape or apparent tomato is not a public or material thing. Naïve Realism can escape, however, by denying that having an hallucination is perceiving or perceptual consciousness. Of course in a verbal sense it is, to have an hallucination of a snake is to seem to see a snake; but the point of the denial is that despite subjective similarity the mode and objects of consciousness in hallucination differ in kind from those in genuine perception. This is surely plausible enough: a vivid dream may be vivid enough to be indistinguishable at the time from perceiving, and children have difficulty in telling eidetic imagery from real objects; yet dreams and images are not held to be sense-data. This is the same point as was made against the Argument from Differential Certainty and challenges the same underlying assumption, namely that the objects of awareness in perception and hallucinations are existents of intrinsically the same type, differing only in external relations to other data. It also involves affirming a further principle, that mental states can properly be distinguished on external grounds, even if subjectively similar. The Sense-datum Theory seems on the contrary to hold that perceiving and having an hallucination must both be cases of perceptual consciousness because the person concerned cannot tell them apart. But it is the external criteria which matter. A realistic dream can only be detected after the event, e.g. by comparing subsequently perceived situations with what would have been the case had the dream been reality. Again, knowing and subjectively certain false belief are two other mental states which can only be distingushed on an external criterion.

Hence if it speaks of 'perceptual consciousness' common sense must only do so for the convenience of avoiding the implications

of 'perceive'; it must resist the assumption that there is one identical mode of consciousness, one identical type of object, in perception and hallucination. It may support this by pointing to the awareness of private sensa as providing a different type of object and mode of awareness from perceiving, but one with manifest similiarities as well. Indeed 'wild sense-data' might well fit such data rather than the more realistic and often better organized hallucinations. It is interesting that after-images were put forward by Moore as typical examples of sense-data[1]; they are indeed private and transitory as sense-data are alleged to be, but the identification would mean that in perceiving we never sense sense-data, for the colours and shapes there seen do not behave like after-images; the red round shape of the tomato does not 'follow one around' and is not projected on to other things.

There remains for common sense the problem of explaining what we are aware of in hallucination and how the experience can so effectively ape perceiving. A final answer must await a discussion of the physiology of perception; but we can suggest an interim explanation which will be adquate here, for the Sense-datum Theory supposes that the nature of perceiving and similar experiences is a question prior to science—one which can be settled without recourse to physiology.[2]

It is stated in some psychology textbooks that hallucinations are vivid mental images, especially eidetic ones, which are mistaken for genuine perceptions.[3] An eidetic image is a peculiarly vivid and detailed image which may be projected on to objects in the visual field and may be seen with the eyes open.[4] Though it may occur some time after seeing the original, it is usually obtained by the subject's looking normally at a scene for a minute or two and then looking away at a grey screen, whereupon he sees on it a realistic reproduction of the scene; the image is not unchanging and may even be plastic, i.e. the details may be altered voluntarily or in response to suggestion. (It must be carefully distinguished from an after-image, which is less detailed, never plastic, often involves colour change from the original, and requires a more intense stimulus, e.g. a light.) The characteristics of eidetic

[1] See *The Philosophy of G. E. Moore*, ed. Schilpp, p. 629.

[2] Price, *Perception*, p. 1.

[3] R. S. Woodworth and Marquis, *Psychology*, p. 565; Boring, Langfeld and Weld, *Introduction to Psychology*, p. 358.

[4] See Woodworth, *Experimental Psychology*, pp. 45–6.

images go a good way to meet the immediate objection to the suggestion that hallucinations are mental images mistaken for perceptions, namely that normally we can distinguish the two perfectly well and do not confuse seeing with, say, day-dreaming. If eidetic images are extremely realistic, are projected on the external scene and observed with the eyes open, then these points, added to their unfamiliarity, make the mistake credible. The difficulty is that eidetic images are usually only obtainable by children and are usually reproductions of what has recently been before the eyes; one has therefore to suppose that these limitations do not hold when the images are hallucinatory.

Some of the images supposedly concerned in hallucinations, however, are probably not really eidetic, but are just very vivid examples of more usual imagery. Their confusion with external objects would then be explained by the circumstances in which they occur—an explanation which would apply with greater force to mistakes about eidetic images. Hallucinations are common and persistent in *delirium tremens*, in acute fevers, in madness, starvation or extreme thirst, but may also occur when a person is overwrought by fear or acute anxiety. It would thus appear that there is usually some disposing factor which robs the victim of full control of his faculties and powers of discrimination, and which may at the same time induce very vivid, even eidetic, imagery. Thus owing to drunkenness, fever, privation, emotional disturbance or even perhaps drowsiness, the person confuses such imagery with perceived objects.

As imagery, hallucinations are more akin to dreams than perception; also they may be 'triggered off' by subconscious awareness of a noise or flash or play of light and shade, rather as one may dream that one is on an expedition to the North Pole because the eiderdown has fallen off. Dreams occupy the whole of consciousness, however, whereas in hallucinations not only is one awake but perception may occur as well, the imagery being integrated with the perceived scene. An attempt will be made in Chapter X to explain this triggering and integration about which common sense can say little. The former factor may explain how a number of people can have a similar hallucination at the same time—a pattern of moonlight and shade suggesting the vision they are expecting to see (expectation and emotional tensenss both helping to reduce discrimination). Group hallucinations are a

problem for any theory however; it is quite as difficult to explain why a number should have similar private wild sense-data as to account for their having similar imagery.

An early version of this account has been attacked by Dr J. R. Smythies as being untrue of the hallucinations caused by the drug mescaline, which occur in the presence of complete clarity of mind.[1] But most mescaline phenomena do not seem to be hallucinations in the sense at issue. They appear to be of two kinds: the first is where the subject, with his eyes open, sees external objects with unusual characteristics. Their colours look more brilliant or their shapes vary, so that the carpet may appear to undulate or a lighted cigarette may appear multiplied. These are not hallucinations, for it is public objects like a carpet that are seen; rather they are extreme cases of 'illusions', i.e. of the distortions and relativity of perception to be discussed in the next section. Instead of mere double vision we have multiple vision on occasion, and the results in general sound like what one would get from seeing an object through uneven glass as one moved one's head, or if one had a compound eye like an insect. The drug interferes in some way with the sense to produce distorted or enriched perception, but not hallucination. The second kind of phenomenon consists of extremely vivid and attractive imagery, normally seen with the eyes shut; and here again there is no hallucination since the visions are clearly recognized as mental images and are not confused with real things.

This division, between mescaline phenomena with the eyes open and those with the eyes shut, seems clear from Smythies' general account and examples,[2] and from some other eye-witness reports.[3] He does say later, however, that when the eyes are open the visual field may be 'replaced by (or filled with) hallucinatory sense-data', and that such data may form a faint background to the veridical visual field.[4] And there do seem to be a few mescaline experiences where what is seen is so very unlike any object present that one should regard them as cases of hallucination rather than of distorted perception. The suggested explanation can easily suppose, however, that eidetic imagery has been induced by the

1 *Mind*, 1954, p. 388, criticizing my paper in *Mind*, 1951, p. 486.
2 In his *Analysis of Perception*, p. 86.
3 e.g. G. Schenk, *The Book of Poisons*, pp. 97 ff.
4 Smythies, *op. cit.*, p. 91.

drug; it is characteristic of such imagery that it is experienced with the eyes open. Where these mescaline visions differ from the more usual hallucinations is that the subject is not deceived; he can distinguish the imagery as a background to the visual field and does not think that the queer things he 'sees' are real objects (though being unfamiliar with eidetic images he may not know what the visions are). This freedom from error is presumably due to the clarity of mind claimed for him, and so the final answer to Smythies' objection is this: the suggestion that the victim lacks normal powers of discrimination was made to account for the deception in the usual kinds of hallucination; mescaline phenomena, in so far as they are hallucinations, are a special case in having no such deception and correspondingly no such lack of discrimination, and so they do not affect the explanation offered of the usual cases.

Although the objection can thus be met without challenging the claim to complete clarity of mind under mescaline, there is some doubt about the completeness of the clarity, even if it is sufficient to prevent deception. As under alcohol, persons may think their powers of discrimination are quite unimpaired when they are not. The effects of the drug vary greatly, and it may cause great emotional disturbance, even uncontrollable laughter or a reproduction of the manic stage of manic-depressive psychosis, according to Professor Zaehner.[1]

The Argument from Hallucination is thus answered by the suggestion that hallucinations are vivid, and especially eidetic, mental imagery; and where the subject is deceived by this imagery it is being confused with genuine perception owing to various disposing factors. Common sense can thus offer a satisfactory alternative to the basic assumption of the Argument, and of the Sense-datum Theory, that the mode of consciousness and objects of awareness are of exactly the same type in hallucination and perception; the modes of consciousness are only subjectively similar and the objects differ in kind, and hence there is nothing in occurrence of hallucinations to undermine the belief that the objects of perceptual consciousness are public physical objects. Admittedly this account of hallucinations is only an interim one and raises for example the question 'What are mental images?', but the Sense-datum Theory equally fails to answer that question

[1] R. C. Zaehner, *Mysticism, Sacred and Profane*, pp. xii, xiii, and App. B.

or to bring in the physiological data necessary for its proper discussion. And at this level the common-sense account seems superior to the sense-datum one in two ways: first, it does not have to postulate a horde of new and unsuspected entities, namely sense-data, but makes do with those, like mental images, which are admitted already; secondly, it accounts for the close correlation between hallucinations and disturbing factors such as drunkenness, fever, or emotional unbalance, by allotting these factors a causal role. One would expect them to affect perception as they do other mental faculties; but the Sense-datum Theory claims not only that the sufferer has perceptual consciousness of the same kind in hallucinations as in normal perception, but also that this consciousness involves an incorrigible form of awareness, an intuitive apprehension which always exists in full perfection or not at all. 'Incorrigible' may fit the drunkard's morals, but neither it nor 'perfect' is appropriate to his cognitive faculties.

5. THE ARGUMENT FROM THE RELATIVITY OF PERCEPTION

This argument is traditionally called the Argument from Illusion, but it is better renamed, for it is not concerned with whether the percipient is deceived or not. The problem is in fact to discover what it is we see when an object looks quite different from what it really is. Before we can pose it properly, however, we must clear up an ambiguity in the words 'look', 'appear' and 'seem'. They may be used phenomenologically, without judgment as to the real nature of the object seen. Thus we may say that the distant mountains look purple in this light, or that railway lines seem to meet in the distance. But often, perhaps because of our interest in the real nature of the thing, we are unable to keep our judgments about it out of our descriptions. Thus if we examined a newly cut flower-bed from across the lawn, we might say, 'It looks square all right', meaning that we judge it to be in fact square; but all the time it might look diamond-shaped or rhomboid from that position, in the first sense of 'look'. In the following discussion I will use 'look' for phenomenological descriptions, 'seem' for judgments, and 'appear' non-committally.

The situation is further complicated by the occurrence of 'object constancy'; when a square object is seen at only a small

angle from directly above or in front of it, it still looks as well as seems square, even though by laws of perspective it should look rhomboid, and, if a photograph were taken, the shape of the object as measured on the print would be a rhombus. For simplicity further discussion of this phenomenon will be postponed until Chapter IX, and it will be assumed here that when things are seen from an angle the displacement is so great that this constancy does not occur and the 'look' corresponds to a photograph from the same position.

We may state the Relativity Argument as follows:[1]

(i) A physical object, e.g. a dish on a table, may at the same time look circular to one observer A and elliptical to another observer B; but it cannot be both circular and elliptical, for that would be a self-contradiction.

(ii) Let us assume the dish is circular; then observer B cannot be directly aware of the dish for he is aware of something elliptical, which we will call an elliptical sense-datum. This sense-datum is private to observer B, for A is not aware of it, and other observers would be aware of different sense-data, i.e. of other elliptical shapes with different curvature.

(iii) If we assume that the dish is elliptical with the curvature seen by B, then A is aware of a private circular sense-datum, and the other observers would be aware of different elliptical ones.

(iv) We thus conclude that whatever shape the dish is, one observer may be seeing it, but all others must be aware, not of it, but of private sense-data.

(v) If you pass from the position where the dish looks circular to one where it looks elliptical, there is no sudden change such as would be expected if you changed from public physical object to private sense-datum, or *vice versa*; in fact the different shapes appear all to have the same epistemological status. Hence they are probably all sense-data; a large number of different sense-data, circular or variously elliptical, belong to the one dish, and what is ordinarily called 'seeing the dish' consists in fact of being aware of a sense-datum belonging to it.

The argument may be stated with many different examples, mountains looking green to A and purple to B, water feeling warm to A and cold to B, and so on. Some cases are particularly plausible,

[1] See especially, C. D. Broad, *Scientific Thought*, p. 240.

e.g. colour blindness or double vision. When the victim is aware of something grey while others see a red object, or there appear to him to be two bottles when others see only one and touch reveals only one, it is more difficult to resist the supposition that the grey object is a private sense-datum or that the two apparent bottles are really two bottle-like sense-data.

There is a faulty formulation of the argument which is avoided and indeed criticized by careful writers like Price. If one says at (ii) 'But the dish is really circular, therefore the elliptical something B is aware of cannot be the dish. Let us call it a sense-datum, etc.', then the argument is faced with the difficulty of explaining how it is known that the dish is circular. Presumably this knowledge depends on direct observation of the dish, so common sense is right part of the time at least. The more modest form of the argument is safer but still brings out the essential point, that one at least of the contrasting perceptions must be false.

If the existence of sense-data is admitted from the initial analysis (see § 2 above), then a much simpler version of the argument can be used to refute the usual formulation of Naïve Realism. One can show that sense-data cannot be parts of the surface of material things by pointing out that if the dish is circular the elliptical sense-data will not fit on to its surface, nor will the circular one if it is elliptical. But this notion of sense-data fitting together like jigsaw pieces is so unfair to common sense that I have preferred a more elaborate statement, one which has the advantage of arguing for sense-data and helping to specify their nature.

The weakness of even the best statement of the argument lies in stage (ii). How are we to take 'directly aware of the dish' or 'aware of something elliptical'? If 'aware of' is, as often, simply a synonym of 'see' or 'perceive', then this stage seems to rely on the incredible assumption that because we see an elliptical-looking dish we cannot be seeing one which is really circular. But surely things can look different from what they are—it would be amazing and disconcerting if an object always looked the same size and shape from wherever one saw it. Hence the dish may look elliptical and be circular, and B is only aware of something elliptical-looking not of something which *is* elliptical.

But the argument is not so simple-minded, and 'directly aware of' is not the same as 'see'. That we do in the ordinary sense of

the term 'see' a round dish looking elliptical is not being denied; what is sought is an explanation of this relativity in its 'looks', of the discrepancy between its real and apparent qualities, particularly as the perception is equally convincing in the different cases (stage v). Moreover even common sense is inclined to think of seeing as a simple direct confrontation of percipient by object, and the point of speaking of 'direct awareness' is to do justice to this clear and immediate apprehension of the object which both observers seem to share equally. But granted this apprehension, the only possible explanation of the relativity and inconsistency of the observations is that each man is directly aware of different immediate objects.

This defence of the argument shows that it is really a variation on the theme of the initial sense-datum analysis of perceiving. The argument can only stand if one agrees that an elliptical existent, and not merely an elliptical-looking one, is given and directly present to B's consciousness. We have thus again the immediacy assumption and the attendant confusion between phenomenology and assertions of existence.

Nevertheless, although we have rejected that analysis and so must reject this argument, we are faced with the claim that the Sense-datum Theory can consistently explain the relativity of perceiving while common sense cannot. This charge can only be met by purging common sense of any tendency to the immediacy assumption or to believing that perception is uniformly excellent simple confrontation. Such notions are in any case inconsistent with the universal belief that things can look different from what they are—i.e. that perceiving varies in quality and accuracy. Furthermore these variations in the look of a thing and in the accuracy of the perception are explicable as due to the differing circumstances in which the perception occurs. One may get a distorted, distant or indirect view of a thing, instead of a good one, as the result of one's position at an angle or at a long distance from it, or because of intervening media such as mist or water; or one may fail to see or hear it properly because of defects in the sense organs or nervous system.

Thus to return to the dish on the table: if it is circular but looks elliptical to observer B, the reason is simply the angle from which he sees it. He sees nothing which is elliptical, for there is no elliptical existent or sense-datum; there is only a round dish. The

'elliptical look' of the dish is not an existent for the phrase simply expresses how the dish looks. Similarly B's view of the round dish is subject to perspectival distortion, so that he fails to see it as it is. But this view is no existent either—to say that one gets a good or distorted view is simply to say how well one can see the object.

The other examples of relativity can be dealt with in a similar manner. When the green mountains look purple, that is presumably a mixed effect of medium (haze) and distance. The stick half in the water looks bent because the intervening media differ, air alone for one part, air plus water for the other. The colour-blind man has defective eyesight, and so a red object looks grey to him; but there is no grey existent, unless we assume that despite defective sense organs he incorrigibly senses. In double vision the convergence of the eyes is spoilt by alcohol or by pressing on the eyeball, so that the bottle looks double. This way of putting it has been criticized on the ground that 'double' is not really a predicate and 'looks double' does not therefore make sense—one should say that there appear to be two bottles. But there are double chins, pyrethrums, stars, axes and eagles, and even if they are not double in quite the same way they are sufficiently close for 'looks double' to be sensible and legitimate. And as far as I can test, a thing looking double does appear different from two separate things because the immediate background is doubled too. But even if we insist on saying that there appear to the victim to be two objects instead of one, that does not mean that there are two, or that he sees two existents with the same reliability as that with which normal observers see one. 'What does a man with double vision see two of?' is a trick question committing the Fallacy of Many Questions. It assumes that he sees two of something when he does not—he sees one thing looking double.

Without going into scientific details which would be inappropriate here, a defence of common sense can indicate the factors which are in each of these cases responsible for the variation in the quality and accuracy of perception. It is because of these factors and this variation that things may look different from what they are—not because at different times one senses different sense-data belonging to the object. The whole notion of direct confrontation and of an uniformly excellent immediate awareness seems precluded by the variations in quality and accuracy thus caused.

Some cases of relativity demand a slightly different explanation. We cannot say that water feels warm to A and cold to B because one or both is not feeling it properly. But if we turn to the scientific account of the situation, we find that the feeling of warmth is correlated with a flow of heat from the object to one's skin, and that of cold with the reverse flow. They thus depend on the degree and the sense (or direction) of the difference between one's skin and the object felt. Thus it is the relation between the object and one's skin, rather than the quality of the object, that is felt. If then the argument is stated in the usual way, 'A bowl of water feels warm to A and cool to B. . . .', its next step 'The water cannot be both warm and cool' is false, for it can be of a higher temperature than A's skin (warm *to A*) and of a lower than B's (cool *to B*) without self-contradiction. This form of explanation will apply to some other 'qualities' which are really relational, e.g. light and heavy, hard and soft, provided that the relation concerned is to the percipient. Thus 'feeling heavy' may be a matter of weight in relation to muscular power of the person, not to some external standard, or 'feeling hard' a matter of resistance. But where the relation is to some other object or standard the main type of explanation applies: owing to distance or media the size of object X is not seen or estimated properly so that it (wrongly) looks larger than object Y or looks larger than normal.

We are now in a position to compare the sense-datum and the common-sense explanations of the relativity of sensible qualities. The former is that the variations are due to changes in the objects of a constantly incorrigible awareness; the sense-data differ but the sensing does not vary in quality. The latter is that the object does not change but that the quality and accuracy of our awareness does. Thus, when we see a tree dimly in a fog instead of clearly in good light, on the one explanation we sense dim tree-like sense-data instead of clear-cut ones, the sensing being equally good in both cases, and on the other our perceiving, which is the only form of awareness occurring, has been impaired by the fog so that we do not see the tree clearly, but its object, the tree, is unchanged.

But it is not enough to show that there is a rival account to that of the Sense-datum Theory; we have to show that it is a superior one. The first reason for preferring it is that it is simpler. By clinging to the immediacy assumption of unvaryingly excellent

awareness, the Sense-datum Theory has to postulate a host of unsuspected and unnecessary existents; but if we admit variations in the quality of perception there is no need to multiply entities. Nor need one multiply modes of awareness: this variable perception, regarded as awareness of external public objects, as a relation between percipient and them, is enough—one does not need sensing as well. Secondly, though the immediacy assumption has a *prima facie* appeal in cases of perspectival distortion, for example, it is quite implausible where the sense organs are defective, The faults which seem responsible for colour-blindness, double vision or failure to hear a sound as clearly as normal people, must surely act by reducing the quality of sensory awareness. That their effect is simply to change the sense-data sensed without impairing the unvarying excellence of the sensing seems incredible.

CHAPTER THREE

THE PERPLEXING NATURE OF SENSE-DATA

I. THE DILEMMA OF ATTENTION

We have now examined and rejected the main arguments for the existence of sense-data and for the abandonment of the common-sense view of perception. But apart from the weakness of those arguments the final conception of sense-data involves serious difficulties.

The first is the dilemma of attention. It is well known that if we attend to an object and look at it closely we see its characteristics more clearly and may notice features which were not apparent before. Thus if we examine a leaf which we had vaguely seen as green and oval we may see that it is in fact a yellowish green, that it is slightly asymmetrical, comes to a point at one end and has an indented edge. On the common-sense view there is no difficulty: the leaf remains the same during the whole period, but by an effort of attention our perception of it changes in quality from an inattentive glance to a careful and exact scrutiny. But the Sense-datum Theory, being wedded to the immediacy assumption of an unvaryingly excellent awareness in perception, should presumably say that the change consists in the substitution of a distinct and highly differentiated sense-datum for a faint blurred one, both data belonging to the leaf. This is unplausible because changes in attention feel like changes in the *mode*, not the *object*, of apprehension, and it lays the theory open to the Idealist criticism that alleged sense-data are not really given to consciousness but are partly the work of attention and other mental activities. Now in dealing with such criticisms on pp. 16–17 of his *Perception*, Price clearly maintains that, when we attend to an object and as a result see it as a determinate shade of green instead of green or coloured in general, the change is not in the colour but in our mode of apprehension of it. One may agree with this, but does it not mean that our original inattentive awareness cannot have been or included sensing, or that if it did, sensing cannot be incorrigible and unvaryingly excellent? True, if we are discussing a leaf,

perceptual consciousness is involved, but that cannot be solely where the change in apprehension occurs; for if we abstract all thought of its character as a material thing from the perception of the leaf and consider only what is sensibly given, the colour and the shape, then almost the same changes occur from close attention. Furthermore Price's own example (p. 16), being one of change in colour, is presumably a change at the sense-datum level. It would thus seem that the theory faces a serious dilemma: either change in attention is unplausibly explained as a change in the object and not in the mode of awareness, or else sensing is not incorrigible, is not intuitive knowing, and its *raison d'être* has disappeared.

The same difficulty has been raised in a slightly different guise in the so-called 'Problem of the Speckled Hen', the name being due to one of the examples chosen for discussion. The question raised is whether sense-data can have properties they do not appear to have or can appear to have properties that they do not have. All exponents of the Sense-datum Theory agree in answering 'No' to the second part of the question; to admit that a sense-datum could be round and yet appear elliptical would destroy the theory by making sense-data as liable to the Relativity Argument as material things. But they disagree about the first, Ayer answering 'No' and Price 'Yes'.[1] The disagreement is understandable as it is a reflection of the dilemma of attention. Suppose we look at a speckled hen: at first we notice it vaguely as speckled, and then if we look closely we see clearly the colour and shape of the speckles and can estimate their size and number. The speckled hen-shaped expanse, being one sense-datum, has all these detailed characteristics, but they were not all apparent at first. Now in answering 'No' Ayer preserves the incorrigibility of sensing, but has to say that we are aware of two different data in the two situations, vaguely speckled and exactly speckled; i.e. the change in attention has changed the object. We may note that this is much easier to maintain if, as he does, one inclines to an adverbial rather than an act/object analysis of sensing; for then the difference between object and mode of awareness, on which the dilemma rests, largely disappears. But Price wants to say that we merely apprehend the one speckled datum in a more determinate manner. Yet in thus

[1] See Ayer, *FEK*, p. 117, and Price's review of that book in *Mind*, 1941, pp. 280 ff.; also R. M. Chisholm in *Mind*, 1942, pp. 368 ff., and Ayer's reply in *Mind*, 1945, pp. 303 ff. (reprinted in his *Philosophical Essays*, pp. 90 ff.).

answering 'Yes' to the first part of the question he seems to be allowing that sensing can vary in accuracy. He defends his answer by saying that sensing is acquaintance and one can be acquainted with a sense-datum without noticing all its characteristics; the variation in accuracy belongs not to our acquaintance with the datum but to our judgments about it. But this defence is unacceptable, even assuming the judgment and the sensing are so easily separable. For the judgments seem to reflect quite faithfully the sensory awareness on which they are based. When they are vague and inadequate during inattention, that is because of the character of the sensory experience at the time; but as we attend closely we can make precise judgments because the content of consciousness has changed. And if this change in content is not due to changes in the object, in the speckled expanse, it must be due to a change in the sensing itself.

We may remark that the agreed answer of 'No' to the second part of the question is far from justified. Some changes in attention seem to involve changes in the quality seen or thought to be seen. Thus if we looked at the speckled hen in a poor light it might at first seem to be grey, whereas on looking closely we would see it was speckled black and white; so if there was the same speckled datum all along it must have appeared to have the property greyness it did not possess. Another example is in the cheap printing of colours, when an area intended to look pink is really white with small red dots; if looked at without close attention it appears to have the pinkness it does not really have.

The controversy over the speckled hen can be interpreted as one over the temporal extent of sense-data, for there is disagreement among the supporters of sense-data as to when one datum ends and the next begins. Can one sense-datum last through the period of change of attention, from the first causal glance to the end of a careful scrutiny? If one thinks sense-data are very shortlived, one is likely to answer 'No' and to claim that each change of attention marks the beginning of a new one, even though that makes them seem to depend on the percipient. There is a similar dubiety about the spatial extent of sense-data. Is the datum the whole of the part of the hen visible at the time, including legs and beak? Or is it just the speckled expanse—or why not say that each speckle is a different datum? Price seems to accept the whole of one ostensible object visible at one time and place as a sense-

datum, but this makes the boundary of a sense-datum depend on the object we think it belongs to, and thus infects the certainty of sensing with the chanciness of perceiving. Locke suggested a more phenomenological criterion for his 'simple ideas' in his *Essay* (II. ii. 1), namely that each idea 'contains in it nothing but one uniform appearance . . . and is not distinguishable into different ideas'. But this should mean that each speckle of the speckled hen datum is a simple idea, and so if applied to sense-data it will make them too minute and lay the theory open to the Gestalt Psychologists' criticisms of 'atomism'.

2. RYLE'S CRITICISMS

The Sense-datum Theory has recently been criticized by Professor Ryle in his *Concept of Mind* (VII. 3). He claims first that the theory rests on the logical howler of assimilating the concept of sensation to that of observation. It takes the ordinary assumption that observing entails having sensations and reinterprets it as 'observing entails sensing sense-data', sense-data being momentary looks, whiffs, glimpses, sounds or tingles private to the observer. But as 'sensing' is merely a pompous word for 'seeing' or 'observing', this means that observing entails observing sensations, which is ridiculous; it involves an infinite regress, for the observing of sensations (sensing of sense-data), as a species of observing, must itself involve observing sensations, and so on; and sensations are not the sort of things we can observe—the logically correct 'having a sensation' differs from observing in that the latter can be suspended at will and its performance can vary in diligence or skill. His second charge is that the sense-datum interpretation of perceptual relativity fails, since it involves talking of 'sensing an elliptical sense-datum' for example, i.e. of seeing or observing the elliptical look of a round dish or other object; and this is nonsense, for we cannot see or observe looks any more than we can eat nibbles or smell whiffs. The theory has misinterpreted our ordinary talk of looks, glimpses or colour-patches, which is really talk about how we see ordinary objects or what we can see of them.

These criticisms are unfortunately complicated by accepting the principle that observing entails having sensations and by assuming like acceptance of it by the Sense-datum Theory. But this principle, which Ryle admits (on p. 200) is unsatisfactory, belongs neither

to that theory nor to the common-sense view; it is really part of the scientifically-inspired Causal or Representative Theory, that stimulation of the sense organs causes reactions, 'ideas' or 'sensations', which the person stimulated then perceives. We shall find Ryle's criticisms useful when discussing that doctrine in Chapter VI, but here we must protest that, as 'sensations' of this kind belong to a causal context and may be 'adverbial' experiences rather than independent existents, it is not fair to equate them with sense-data, even if the supporters of the latter are not always clear about this.

Nor can we accept the second part of Ryle's equation, sense-data = sensations = looks, glimpses or whiffs. As he admits (p. 206), glimpses and whiffs are not normal examples of sensations, either in the ordinary sense of 'sensations' (tickles or pains) or in the scientific sense (caused sensory reactions). More important, however, we cannot equate the first and third terms, for glimpses, whiffs and some kinds of look are not examples of sense-data. Glimpses and whiffs are internal accusatives and have no existence apart from the catching of them, which does not fit the act/object analysis of sense-data. 'Look' is more complex: 'taking a look' is like 'catching a glimpse', and no one supposes that a look in this sense is an independent existent. But 'look' can also refer to the appearance or aspect of a thing, a 'new look' or 'elliptical look', and one can conceive of a thing retaining this kind of look when not observed. The sense-datum seems derived from it and should not then be confused with the internal accusatives. Secondly, glimpses and whiffs are too brief. Sense-data are transitory but not normally momentary; they can be inspected and may last long enough for careful examination and description, as in the tomato example. But one has not time to examine a glimpse or that of which one catches only a glimpse.

Can we restate Ryle's criticisms to avoid these confusions? The Sense-datum Theory can no longer be accused of muddling sensation and observation, because sense-data are not sensations. But the infinite regress argument can be reformulated: the theory holds that observing entails sensing sense-data, but as sensing is a pompous word for observing, this means that observing entails observing sense-data and so on. The theory can be acquitted here, however, because the objection ignores the carefully drawn distinction between mediate and immediate awareness. Sensing is

not the same as perceiving or observing, since it is direct intuitive acquaintance, while they involve intellectual processes (taking for granted or synthesis) as well. The second criticism still survives, provided one does not accuse the theory of suggesting we observe glimpses or whiffs, but it has lost its force; when 'look' is being used as an equivalent to 'aspect' or 'appearance', i.e. as an independent observable, then to talk of observing the elliptical look of a thing is not to indulge in mere reduplication like 'eating nibbles' or 'seeing glimpses'. 'He observed the elliptical look of the dish', though stylistically odd, would be epistemologically no more objectionable than 'he was impressed by the opulent appearance of the room' or 'Thomas had an unhealthy look'. The real mistake in the Sense-datum Theory lies in omitting the 'of the dish' when it passes from look to sense-datum and in forgetting that these phrases with 'look' or 'appearance' are just ways of saying that some physical object looks or appears. It wrongly treats the 'look' as an existent of a different order from the dish, one capable of 'wild' independent existence without the dish. One may describe this as vicious abstraction (of the look from that which looks) or as reification (of looks), but the fundamental objection is to this introduction of a new order of existents. This is hinted at in various places in Ryle's discussion, but he should have given it greater emphasis and not confused it with duplications like eating nibbles; it is due not to grammatical ignorance but to a faulty analysis of the perceptual situation and of illusions and hallucinations.

Ryle adds a further criticism, however, which would undermine the above reply to his first. He claims that sensing, the alleged mistake-proof form of observation, is a pure invention and does not occur. All observing is fallible, and while sensation is not mistaken, that is because it is never observation—the words 'fallible' or 'infallible' are not applicable to it. He suggests that an important reason for the invention of sensing is a confused realization that some observation words are 'achievement words'.[1] By this he means that the logic of 'see' and 'hear' is such that one cannot see or hear incorrectly or unsuccessfully, any more than one can win unsuccessfully or solve incorrectly. This is simply a verbal matter. It is not that some kinds of observation are infallible, but that only if observation is successful do we say that we have seen or heard;

[1] p. 238 (cf. p. 152).

if it is unsuccessful or in doubt we should use 'think I see' or use 'task words' like 'look', or 'watch'.

To this the Sense-datum Philosophers can simply reply that incorrigible awareness, as in sensing, is not mistake-proof observation or seeing, for that would imply mistake-proof perceptual consciousness, something we do not possess. Sensing can only be incorrigible just because it does not claim anything about material things—it is simply awareness of what is given; and the belief that there is something given, something we are certain of in every perception, is not due to muddles about achievement words; it is the result of an initial analysis of the type Price makes in discussing the tomato. The theory can be overturned only by challenging this analysis, not by classifying verbs.

This seems a sound reply; but I will say a little more about the task/achievement distinction, because it apparently runs counter to a principle which I claimed was in accordance with common sense and so should be in accordance with ordinary language. If seeing or perceiving is always achievement, if we cannot logically see unsuccessfully or incorrectly, then what becomes of my claim that perception can vary in quality and accuracy and that we may fail to see things properly? The answer is two-fold. First my claim is in accordance with ordinary language: we do speak of 'not seeing properly', 'hearing indistinctly' and so on. It would seem to be merely linguistic accident that we do not denote these shortcomings by 'incorrectly' or 'unsuccessfully'. Secondly, there is no real clash because different forms of achievement in perception are at issue. One's observation of an object may be successful in two ways: first that it enables you to ascertain what object it is, and secondly that it shows clearly and accurately the characteristics of the object. Ryle is discussing the first kind of success, but I am concerned with the second. Thus 'seeing' is an achievement word in that 'X saw a dog' implies that there was present to his senses a dog, and not a wolf or a plaster cast; but it may vary in quality and so not be an achievement, in that he may not have seen the dog clearly and so may have thought it was lame or was all black or was a retriever, when it was not.

3. SENSE-DATA AND MATERIAL THINGS

Further difficulties in the Sense-datum Theory become apparent if one examines the differences which, on the developed theory,

are said to hold between sense-data and material things.[1] First, a sense-datum is said to be private to the mind that senses it, while a material thing is public, accessible to an indefinitely large number of percipients. However, not only do the arguments we have considered give no ground for accepting the existence of private objects of awareness in all perception, but the standard examples of sense-data seem to be as public as tables and chairs. They include patches or expanses of colour, sounds and smells; but two or more people can see the same colour-expanse or pattern, or hear the same sounds—the entertainment industry would be in a bad way if they could not. Similarly they can both smell and discuss the same smell, whether of gas in the kitchen or of flowers in the garden. And 'same' in these contexts does not just mean 'qualitatively alike'; for as two observers can agree on the exact location of a coloured expanse, or on the time duration and location of a noise, there seems no reason to deny that they are aware of one and the same colour or sound. To avoid this objection it may be said that sense-data are private, not to a mind but to a point of view; an elliptical sense-datum from a round dish is private to a certain position, but any observer in that position could get it. This would only be true of some positions however; in very many the same coloured shape or sound or smell can be experienced, and so sense-data would still be public and multiply accessible. Moreover, the sense-data postulated to explain colour-blindness or double vision are private to a person not a viewpoint, so apparently if the theory is accepted some sense-data are private and some public.

There are, however, more plausible distinctions of 'private' and 'public' in perception. First, one might say that what varies with the percipient's position, health or attention, and so might be called subjective or private, is not the object of awareness, be it sofa or sunset, but the view he gets of it, the way it looks or the extent to which he notices it—in other words the quality or accuracy of his perception of it. Secondly, mental images and dream objects, bodily sensations and 'private sensa', may be distinguished from perceived objects by their privacy to the subject; I cannot see or photograph what you are dreaming or imagining, or feel your pains, whereas I can normally see or photograph the coloured expanses that you see, hear or record the

[1] A useful list is given by Price, *Perception*, p. 145.

tunes that you hear, and so on. In view of this distinction it is confusing to speak of colours or sounds as private sense-data.

Another troublesome point is the lack of causal efficacy attributed to sense-data. Indeed Price says (p. 146), in emphasizing this differentia, that 'by a material thing we *mean* something which has causal characteristics', but if we apply this definition to some of the favourite examples of sense-data, we can but conclude that they are material things and that the theory is therefore incoherent. Sounds frequently activate microphones and occasionally shatter wine-glasses, while in a well-known school experiment colour alone affects the absorption of heat by a tin box. Smells are causal too in that they may attract insects or cause asthmatic attacks. It might be said that in such cases it is not the smell but the sensing of it that acts causally (assuming insects sense). But such an escape is not possible in the examples of the causal efficacy of sounds and colours; nor will it help the theory to claim that the noise is complex, and so a family of sense-data, for on the realist version such a family has no causal properties (they belong to the 'physical occupant'), and we can anyhow assume that the public and causal noise is a single note, just one sense-datum.

The scientifically-minded reader may be impatient with this discussion. 'Surely', he may say, 'it is the sound waves, not the sensation of sound, which act causally. And when we say that a colour or sound is public, that is really based on a confusion: the light or sound waves are public and so affect cameras or recorders or many different persons at once; but they cause a separate sensation in each person, and even if these sensations are qualitatively all alike they cannot be physically identical, being in different persons.' But this kind of objection cannot really be considered apart from the Representative Theory we discuss in Chapter VI; at least attempts to make the scientific causal evidence the basis of one's account of perception have always tended towards self-refuting conclusions like those of the traditional versions of that theory. Hence the Sense-datum Theory would shrink from availing itself of this kind of support, and it claims to be analysing perception itself, not its causes as discovered by science.

More perplexing than the differentiae of sense-data, however, is the part they are supposed to play in material things. Price has devoted more study to this problem than any other exponent of

the theory, but even his care and ingenuity cannot provide an acceptable solution. A material thing, he holds,[1] consists of two elements, a physical occupant and a family of sense-data; it is by virtue of being a member of a family that sense-data belong to a material thing. Such a family is composed of actual and obtainable sense-data of two main kinds: nuclear sense-data, which are 'constructible', i.e. can be put together mentally to form a 'standard solid' possessing the 'real' spatial properties of the object; and an infinite number of other sense-data arranged in series of ever-increasing distortion. Thus in the case of the dish, the round sense-datum is one of the nuclear ones, while the various elliptical ones have their place in the distortion series. Similar series exist for colour, varying with the light and diverging from a standard colour sense-datum.

The physical occupant, the other element in a material thing, occupies the place where the standard solid is situated and is responsible for the causal properties of the thing. It is admittedly shadowy and unobservable, a something we know not what; we cannot discover anything about its intrinsic properties and know only of its causal ones, which may only be a small fraction of the whole (p. 296). It is only introduced because the causal properties of material things cannot be attributed to sense-data; a material thing may act causally when totally unobserved and so presenting no sense-data. This notion of a physical occupant is unsatisfactory, for the necessity of postulating unobservable entities for which there is no independent evidence, independent that is of the need they are meant to satisfy, is normally held to render a theory very dubious. The hypothesis of a physical occupant then looks like an *ad hoc* one to support the faulty sense-datum analysis of material things.

This suspicion is strengthened if we consider the difficulties in the relations between sense-data, material things, and the various mental and physical processes occurring in the percipient. In the ensuing sections, therefore, I shall try to show: (i) that Price's attempt to deal with the relativity and causation of perception can only avoid inconsistency and self-refutation at the cost of paradox (§ 4), and (ii) that his account of the nature of sense-data intensifies the conflict and paradox, particularly concerning the category to which sense-data are to be assigned (§ 5).

[1] See *op. cit.*, Chs. VIII and IX.

4. THE SELECTION OR GENERATION OF SENSE-DATA

The Sense-datum Theory explains the relativity of perception by supposing that different observers sense different sense-data belonging to the same material thing. We have considered this view *vis à vis* common sense, and must now match it against the sceptical arguments outlined in the first chapter: (*a*) that relativity means subjectivity, that the privacy of sense-data, their dependence on the state of the nervous system, and the discrepant scientific account of the nature of matter, all mean that sensible qualities must be reactions in the percipient and not intrinsic properties of the object; (*b*) that a study of the causal processes involved in perceiving suggests that we are aware only of a private world of our own sense-data.

Price rejects these arguments as self-refuting; the scientific evidence is based on observation and so cannot be used to deny the claims of our observation of material things to be veridical.[1] The philosophizing physiologists have only considered the situation of O perceiving M from a third party point of view, that of an external observer; if one does this it is easy to conclude from the causal process between M and O that O is merely aware of sensations caused by M. But they forget that this account must also apply to the third party's observations of O and M, and if he likewise is only aware of sensations, how does he get to know of M and of the causation of sensations? They answer that from comparing and correlating sensations we could infer their causes, namely material things. But Price clearly refutes this in Chapter IV: we are not in fact conscious of inferring in this way, the methods of correlating sense-data suggested would not give us the beliefs about material things that we do have, and the theory only has an air of plausibility because it tacitly presupposes these beliefs, i.e. it is circular.

His remedy for this is that we should give up the external standpoint and take up instead the 'immanent' one, that of the individual experient himself (p. 37). We must analyse the perceptual act as it seems to the percipient, distinguish what is indubitable in it, namely sense-data, and build on that foundation. If we do this, the two questions at issue are answered as follows.

(*a*) Relativity does not mean subjectivity, for the existence of

[1] *op. cit.*, p. 36, cf. p. 1 and Ch. IV.

sense-data is not dependent on our sensing of them; if not hallucinations, they belong to a material thing as members of its family, and so are not just sensations in us. Some of the family are standard or nuclear sense-data from which others diverge, and this enables us to give a meaning to 'real' and 'apparent'. Real colours and shapes are the standard ones, while apparent sensible qualities are members of the divergent distortion series (pp. 209 ff.).

This does not yet meet the problem, which is concerned with 'real' meaning 'intrinsic', not simply the opposite of 'apparent'. How can perceived qualities or sense-data be intrinsic properties of objects if they are conditioned by or dependent on the state of the person's nervous system, as in colour-blindness or drug-taking? The basic conflict is beginning to emerge here. On the one hand sense-data are said to be private immediate objects, which suggests subjectivity, and yet they are existents independent of our sensing, members of public families of sense-data constituting material things. And if their dependence for their existence and qualities on the state of the percipient's nervous system is admitted, as it is by Price, then the tendency to subjectivity is greatly strengthened. Clearly the nature of this dependence must be clarified by the second answer.

(*b*) From the immanent viewpoint one can divide all the sense-data experienced at any one time (the sense-field or *totum datum*) into two: environmental data, those which we take to belong to external material things, and somatic data, those which we regard as belonging to our bodies (pp. 38 ff.). By observation and experiment we can discover that the former vary concomitantly with the latter, e.g. the environmental sense-data vary with the kinaesthetic ones associated with walking about or moving our head, and they are cut off when we get the data of closing our eyes. Concomitant variation must be taken as a sign of causal relationship, but, as sense-data have no causal properties, our conclusion must be that environmental sense-data are causally dependent on the bodily organs to which somatic sense-data belong. With the full development of the theory and the justification of perceptual assurance of the existence of material things, this provisional account is amplified, and he shows in Chapter X how, by consideration of series of sense-data, we conclude that our sense-data are causally dependent on external material things as well as on our bodily processes. We first reach this belief about other people's data, and

then transfer it to ourselves by observing with one sense how the data of the other senses originate.

It is not necessary to go into the details of the account. Price avoids the main mistake of the Causal or Representative Theory; he first builds upon sensing our perceptual assurance of the existence of external material things and then discusses the part they play in the causation of sense-data. He shows how all the observations which give rise to our beliefs about this causation can be stated in terms of sense-data, and that the beliefs can be justified from them. But despite the importance of this change in starting point, there are serious difficulties in his account.

In the first place his is not the only possible interpretation, from a sense-datum point of view, of the concomitant variation of environmental and somatic sense-data and of the fuller evidence he gives in Chapter X. He adopts what is usually called the Generative Theory, namely that these facts show that sense-data are generated or brought into being by the action of external bodies on the sense organs and by the subsequent processes in the nervous system. The other interpretation, the Selective Theory, is that the function of sense organs and nervous system is to select certain sense-data from the great variety of possible ones belonging to a given material thing. The first interpretation is the one closest to common sense and scientific theory, but the Sense-datum Philosophers are not bound by such considerations. Nor does a common objection to other forms of selective theory apply here, namely that they attribute contradictory qualities to the object. (They suggest, for example, that the object is both grey and red, and that the normal person selects red and the colour-blind man grey.) For sense-data are strictly regarded, not as qualities of an object, but rather as existents belonging to it as members of a family, and there is no contradiction in asserting that the one family contains red and grey data, however difficult it is to grasp fully what it means.

Price's main reason for rejecting the Selective Theory is that in effect it denies causal connection everywhere, for our normal criterion of such connection is concomitant variation of the type which exists between somatic and environmental sense-data (p. 50). But this misses the point; the Selective Theory need not deny the variation is the sign of some causal connection, for it could say that the sensing of the sense-data is dependent on bodily processes; it

need only deny that the sense-data (as opposed to their sensing) are thus brought into being.

Nevertheless, although the Selective Theory can be defended on this, I do not wish to advocate its acceptance. It seems unplausible in that it involves supposing the continuous existence unsensed of a fantastic variety of entities. If the sense organs and nervous system do not generate but only select or reveal data, then we must suppose that all the visions of mescaline, the 'world going round' sensations of giddiness, the second candle or bottle of double vision, to mention but a few, all exist unsensed all the time, awaiting selection by the victim—which would make the world incredibly complicated. Price is not impressed by this objection and argues that the sense-data, even the oddest ones, are not assumed but found; they certainly exist for they are sensed (p. 46). But common sense need not admit such data as existents, and can say that they are merely experiences of the percipient; and it is the postulation of *existents* of such a type, unsensed and without corroborative evidence when unsensed, that is epistemologically objectionable.

Let us then, though on different grounds, follow Price in preferring the Generative to the Selective Theory, and ask whether he can adapt it to avoid the dangers of the Representative Theory. He thinks he has escaped them, but this may be because he has not drawn the full corollaries from his conclusion that sense-data are 'wholly dependent for their origin, for their persistence, and for all their qualities' on 'psycho-cerebral events' (p. 136). For in perception at least, these events are themselves dependent on a relatively lengthy causal chain: light or sound waves travel to the sense organ from the object, and then, as the result of activation of the sense organ, impulses travel along the nerves to the brain. But if this chain of causally-linked events is like others in nature, and there seems no good reason for denying it in this respect, then the final events not only occur after the initial and intermediate stages but occur in the thing or substance last affected. Certainly the electro-chemical activity, which is the last physical link in the chain, occurs in the brain of the percipient, not in the object perceived or in the intervening medium. And whether we then, as on the old theory, say sense-data are causally dependent on these brain events, or whether we allow for some other relation between brain and mental events and say that sense-data are, or are

dependent on, 'psycho-cerebral events', the conclusion must be that they come into being in the percipient, are reactions in him, and do not exist in the object which is the remote beginning of the causal chain.

But if sense-data are thus in the percipient's mind or brain, how can this be squared with the beliefs that they belong to material things or that some, as we shall see, are in physical space at a distance from the percipient? If these beliefs are pressed, sense-data seem to be in two places at once; if not, then 'belong' must be interpreted in a very weak sense. Price says at one point that the family of sense-data is only a construct:[1] we find a number of data go together in a certain way, and so we synthesize them or regard them as a whole; but it must now appear that the family is a construct of events in us and can have no existence outside various percipients. If then we conclude that the family is a system of this kind, and accept that the physical occupant, the only other element in a material thing and one clearly not in any percipient, is unknown so far as its intrinsic qualities are concerned, it is difficult to see that the Sense-datum Theory, despite its better starting-point, is ultimately any better off than the Representative Theory. All our direct awareness is of sense-data which turn out to be events in us; all that is left outside us are things we know not what, about which all we can say is that they cause sense-data in us and changes in other things.

The only way to avoid this *débâcle* is to say that sense-data are not events in us. Price in fact does this (pp. 134 ff.), though it is dubious whether he is entitled to do so once he has accepted the Generative Theory. But his alternative, that they are events neither in the percipient nor in material things, seems to involve an equally undesirable paradox, which we must now examine.

5. THE CATEGORY OF SENSE-DATA

My thesis in this section is that if one gives due weight to this claim that sense-data are events, yet events neither in us (though dependent for their origin and properties on the mind and brain) nor in the material things to which they belong, and if one considers also the differentiae which mark them off from material

[1] *op. cit.*, p. 286, cf. pp. 217 ff.

things (privacy, transitoriness, lack of causal characteristics, spatial incompleteness, and so on), then they must be regarded as entities so queer and paradoxical as to condemn the theory which depends on their postulation. It may be replied that queerness in itself is no objection; the physical world is strange and complex, and the conclusions of modern physics so overtax the imagination that they can scarcely be grasped even by the specialist. But the queerness of sense-data is not just a matter of difficulty and unfamiliarity; to accept it means a fundamental change in our conception not only of the nature of things but of the possible forms such a nature can take; without this change the theory seems nonsensical, yet no adequate case is made out for accepting it.

This charge cannot be dismissed on the grounds that all that matters are the relations of sense-data to material things, not their nature, or that sense-data can be ostensively defined, are open to inspection, and are familiar to all as colours, shapes or sounds. For we seek a comprehensive theory which will cover all the facts of perception and indicate the nature of what we are aware of, so that if we are aware of sense-data, and if it is a fact that they exist, we must discover their nature. Apart from this the paradoxes alleged do concern the relation of sense-data to percipients and material things, and they are emphasized as part of an attempt to show that the supposition of the existence of sense-data must be rejected as incoherent as well as unjustified. As to the second ground, we are admittedly familiar with colours and sounds, but the point at issue is whether they are private existents, i.e. sense-data, at all; and there is little hope of a final answer to this question if we do not know what kind of an existent a sense-datum is supposed to be.

In Chapter V of *Perception* Price reaches the following conclusions about sense-data:

(i) They are particulars, individual existents, not universals; for what we sense is not redness but an instance of it, something red.

(ii) They are not substances; for they are created *ex nihilo* and return *in nihil*, they depend for their existence, origin and properties on the state of the person sensing, and they are not the enduring subject of changing attributes and states.

(iii) They are thus to be regarded as events; but they are not phases of material things. Some are hallucinatory and all are dependent on the person's mind and nervous system.

(iv) They are not phases of the self (mind or *psyche*) or of the brain or of the person considered as a substantial compound, a psycho-cerebral compound; for sense-data are not adverbial experiences of the person, and the nuclear sense-data of sight and touch are in some way constituents of the surfaces of extra-cerebral physical objects, thus being events 'at a long distance from the skull'.

(v) Hence, unlike other events, they seem to be phases of no substance and inhere in none; they are thus neither mental nor physical. But though they thus 'happen to nothing' they do not 'occur in the void' (p. 136). They belong (usually) to material things and are intimately united with, and might be called prolongations of, the psycho-cerebral events on which they depend.

Now, granted the existence of sense-data, there seems no reason to quarrel with the first two of these conclusions; but, even allowing for the distortions and omissions of a brief summary, the last three seem to justify the charge of intolerable paradox.

One of the main difficulties in accepting Price's account is that it seems to be developed within the context and assumptions of the Aristotelian doctrine of categories and yet at the same time involves a rejection of it. The points of the doctrine relevant here are: First, everything, in the widest sense of 'thing', can be classified as one of several irreducible categories or types of being, e.g. as a substance, quality, relation, quantity or action. 'Event' does not appear in the traditional list, but a simple event may, as a phase of a substance, be regarded as a short-lived instance of one of a group of categories (those of action, being acted on, posture and state). Secondly, substance is the primary category, i.e. substances are the only fully real and independent existents; those in the other categories can only exist in a secondary sense as attributes or modifications of substances. Thus a quality cannot exist on its own but must characterize some substance, a relation must be between substances, an action is the action of some substance, and so on. Now there are many qualifications which could be made to this: for example, the Aristotelian category list is variable

and there is little but Greek idiom to justify a distinction between posture and state, while to make the scheme plausible we should have to allow for relations between qualities of substances. But such details need not concern us here; all we need is the broad outline, and from that it will be seen that the doctrine is another way of putting the common-sense notions about the world we used as a starting point. The public interacting entities of the publicity assumption—human beings, animals, plants, material things—are just the sort of thing Aristotle had in mind in distinguishing substances and regarding them as primary; and it is likewise common sense that qualities or events have only a dependent existence, that they exist only as attributes of these basic entities or as occurrences in or between them.

A great difficulty in understanding the nature of sense-data is that of deciding to which category they belong. For if we accept something like the Aristotelian system (and this Price seems to do in the characteristics he assigns to substances, in the way he immediately passes from the decision that a sense-datum is an event to asking of what substance it is a phase, and in the reasons he gives for denying that sense-data are substances), then the ultimate conclusion that sense-data are phases of no substance seems nonsensical. And it is equally an affront to common sense, for how can we conceive of an event which 'happens to nothing'? To suppose that there are events of this kind is like supposing a race without runners or a murder with no victim.

It might be replied that there is nothing sacrosanct about common sense or the Aristotelian categories, and that the problem disappears once we dispense with that conception of substance. Indeed the existence of sense-data as events of this nature, once it has been separately established, tolls the death knell of this old prejudice. It is limited to a sexton's job, for the real killing has been done by modern physics. Thus if an electron behaves in some respects as a particle (a substance) and in others as a wave (process or event), then substance is not prior or a distinct category. And when electro-magnetic waves were discovered it was felt that there must be a substance, the ether, to be modified by the wave-form. But as observation and experiment have given not the slightest evidence of such a medium, one is forced to the conclusion that the waves are events belonging to nothing and modifying no substance. Similarly the doctrine of relativity has

damaged the category system, for it would appear that space and time are not distinct categories, and the general equation of mass and energy would seem to make substance and event (or process) interchangeable. Hence there have been attempts by modern philosophers, e.g. Whitehead, to formulate a new category system more in accordance with the findings of science that that of Aristotle.

Now there is some general force in this, but it is of doubtful assistance to the Sense-datum Theory, which is concerned with the observation on which science depends and so is chary of using arguments from science. The scientific details are controversial, e.g. it can be objected that electrons are primarily corpuscular—the waves are not actual events but are merely representations of the probability of finding electrons. Similarly light may be held to be corpuscular too, i.e. a substance, and not an event wanting a non-existent ether. Anyhow, even if a new category or conceptual system is necessary for atomic or relativity physics, that does not destroy the adequacy of the Aristotelian one for macroscopic objects within a single frame of reference, any more than it undermines the usefulness and validity of Newton's laws for ordinary mechanics. Nor has Whitehead's system found general support as a substitute—its very obscurity and complexity emphasize the great difficulties facing anyone who undertakes the task of producing a new category system. And any new system would have to be argued for; one would have to show that it was more comprehensive and economical than the Aristotelian system.

However, Price attempts no such radical solution and seems to take the traditional system for granted. Indeed it is clear from p. 136 that he does not see any serious difficulty in his position. He thinks that the objection to events that are phases of no substance is not to events 'happening to nothing' but to 'events occurring in the void'. By the former of these terms he means, '. . . "events which are not united with other events *in the way that the diverse phases of the same substance are united*", viz. by continuity in respect of place, time, and quality, and by immanent causation'; by the latter, 'events *in no way united* with events which *are* phases of some substance' (his italics). And though sense-data happen to nothing they do not occur in a void, for they are intimately united with psycho-cerebral events and are related to other data in the sense-field; and if not hallucinatory

they belong to material things and are indirectly causally dependent on them.

But this perhaps over-subtle distinction between events happening to nothing and those occurring in the void will hardly save the theory from paradox, for neither is allowable on the traditional system. If there were commonly accepted existent events which happened to nothing one would have to modify this objection and revise one's ideas; but Price suggests none, and it does not seem possible to do so. There are, it is true, events which happen to *no one* thing but to several, e.g. explosions, collisions, or games. But they are complexes, collectives, and can be analysed into simple component events which are phases of the different substances involved; while sense-data are ultimate simples, and unanalysable.

We may well ask, however, why the Sense-datum Theory has to court paradox in this way, and why it wants to say that sense-data happen to nothing. The answer seems to lie in the conflict between the Generative Theory and the notion of 'belonging to' which we adumbrated in the last section. That conflict seemed to lead to the paradox that sense-data are in two places at once, or at least are phases of two different and spatially distinct substances. To avoid it the theory has to suppose that the relations to these substances do not amount to being phases of them, with the result that there is nothing for them to be phases of. Let us confirm this criticism by setting against each other the reasons given for denying that sense-data are phases, respectively, of material things and of the percipient.

The first denial rests partly on the existence of hallucinations and of illusions like colour-blindness or double vision which are conditioned by the state of the percipient. This would only mean that some sense-data were not phases of material things; that none are is suggested by the privacy and immediacy attributed to sense-data, but rests chiefly on the Generative Theory that sense-data depend for their origin and properties on processes in the nerves and brain.

A minor reason for the second denial, or at least for denying that they are mental or psychical, is that sense-data are not like feelings or emotions (pp. 121 ff.). But even if we pass over the protests of the adverbial view, we must note that some sense-data at least are bodily feelings, e.g. tastes, tickles, warmth, pressure or kinaesthetic data; they must then surely be phases of the person

not of material things. But the important argument is that nuclear sense-data at least are 'in some sense or other constituents of the surfaces of material objects', are 'events a long distance from the skull', and are not spatially continuous with brain events, being 'separated by a blank interval of outness' (pp. 134 ff.). The suggestion that nuclear sense-data are part of the surface of material objects at a distance from the person is amended and expanded later (pp. 249–52). The nuclear sense-data, it is said, do not strictly have position in physical space (a denial likened to the denial that cells have position in the animal kingdom) but they are still constituents of standard solids, and every such solid, indeed everything which has position in physical space, is composed of nuclear data. This also means that a family of sense-data is not just a mental construct and that the notion of 'belonging to material things' should be interpreted sufficiently strongly for it to be inconsistent with the supposition that sense-data are phases of the percipient.

The difficulty about the reasons for the two denials is that they prove too much; they each support their own denial, but at the same time they militate against the contrasting denial. Thus the acceptance of the Generative Theory, while showing that sense-data are not phases of material things, does at the same time mean that sense-data must in some way inhere in the person and be phases of him; for the generation depends on and is intimately linked with cerebral or psycho-cerebral events which are in and are phases of the percipient. (And as some sense-data are bodily feelings they are presumably phases of the person concerned.) Conversely, as standard solids are constituents of material things and carry their spatial properties, the unavoidable conclusion from the main reason for the second denial is that nuclear sense-data inhere in, and are phases or attributes of, material things. How then can they be generated by the percipient's brain and nervous system? It would seem that nuclear sense-data at least must be in two places at once.

There thus seems to be an irreconcilable conflict of trends within the theory, one attributing sense-data to the percipient and the other attributing them to material things. And if to avoid open inconsistency one says that they are events which are phases of neither percipient nor material thing, in short of no substance at all, the resultant paradox is an affront both to common sense

and to the traditional category system presupposed in the theory.

In the second chapter I tried to show that the Sense-datum Theory was unnecessary, the arguments for it being faulty and the facts it adduced being equally or better explained on common-sense lines; in this chapter we have seen that, in its realist form at least, it is unsatisfactory in itself, being beset by a central conflict resolvable only in paradox, as well as by the dilemma of attention, by the postulation of unobservable physical occupants, and by other difficulties. Despite this, there are some valuable suggestions in the full theory which we shall use later, e.g. the distinction of immanent and external viewpoints for dealing with the causal evidence or the discussion of the non-sensuous elements in perceptual consciousness. But before we can make use of them in developing a different theory, we must examine the Phenomenalist and Linguistic variants to see whether they can save the day for sense-data.

CHAPTER FOUR

PHENOMENALISM

I. REDUCTION TO SENSE-DATA

One difficulty common to both the Representative Theory and to Price's Sense-datum Theory is the postulation of a material world which is in whole or part unobservable. This has been a great embarrassment to the more empirically-minded supporters of 'ideas' or sense-data, and they have therefore sought to rid their theory of unknowable matter or physical occupants. The commonest type of solution has been to attribute the alleged power of these entities to groups of sense-data, and to claim that physical objects consist of nothing but such groups of data. This line of thought is not the inevitable conclusion of empiricism, if by that is meant the belief that all knowledge of the physical world is based on sense-experience; for if the common-sense rejection of private immediate objects can be developed into a full explanation of the problems of perception, it will provide an alternative conception of sense-experience, namely the direct observation of material objects. But once such experience has been regarded as essentially awareness of ideas or sense-data, a radical philosophy will find it difficult to avoid some attempt at reducing physical objects to groups of these private existents.

An initial problem confronting this programme is that of the persistence of matter. We suppose most physical objects to last for a long time and to exercise their causal properties throughout their 'life', quite independently of human observation; if they did not do this they could not follow simple laws, their behaviour could not be explained or controlled, and science would collapse. But our observation of a given material object is fragmentary and interrupted. We seldom look for long at one object or one part of an object, soon turning away to look at something else; and even if we tried to gaze at it for hours, drowsiness, fatigue or interruptions would thwart us; nor can we rely on other persons or even animals perceiving a thing during the times our attention is directed elsewhere. Hence virtually no object is observed for all its existence; and many may never be observed at all. But if a material object is simply a family of sense-data it exists only when

observed; when no one perceives it none of its sense-data occur, and if all the members of a family are extinct, so is the family. Hence it would seem that material things are continually going out of existence and coming back into existence again, according as they are perceived. To avoid such absurdity the reductionist programme must find some way of filling in the gaps between observations so that families of sense-data can have a continuous existence.

From a common-sense point of view the significance of the 'gappiness' of sense-experience is slight, and it is no objection to the belief that material objects exist unobserved. Only if objects appeared and disappeared like the Cheshire Cat when stared at, might there be grounds for doubt; conversely we should be shocked if our perception were not interrupted by closing our eyes or moving away, and it is partly due to their persistence in such circumstances that we conclude that private sensa are not real physical objects. The important point about this gappiness in our observation of material things is that it is normally correlated with our actions. Our awareness of the book on the table is interrupted when we turn away or leave the room, and it returns as we return. Even minor and scarcely noticed interruptions, such as those due to blinking, are likewise attributable to our actions. Since therefore the fragmentariness of our seeing an object is sufficiently explained by the fragmentariness of our looking at it, we do not have to suppose the existence of the object to be interrupted as well; if the object did not persist we should get more gappiness than we do; the interruptions would get out of step to produce a Cheshire Cat effect, and we could not explain how when X's awareness of an object was interrupted, Y's, of the same object, was continuous.

These considerations are little comfort to the radical Sense-datum Theorist; in fact, by stressing that physical objects persist when no actual sense-data occur, they intensify the difficulty of reducing them to sense-data. His only resource is to fill in the gaps between actual sense-data with postulated existents which are similar to sense-data and so are not mysterious and unknowable like physical occupants. Two kinds of existent have been suggested:

(i) Unsensed sense-data, or *sensibilia* as they are less paradoxically called. Sensibilia are defined by their inventor Bertrand

Russell as 'objects which have the same metaphysical and physical status as sense-data without necessarily being data to any mind'.[1] In fact sense-data thus amount to sensed sensibilia, and a material thing may be described as a class (family or system) of sensed and unsensed sensibilia. This theory, often called 'Sensibilism', has been abandoned by Russell, and despite occasional defenders[2] is not widely held; Price has developed the view that it is the most plausible conclusion from Hume's initial assumptions.[3]

(ii) Possible sense-data: a material thing is then defined as a family of actual and possible sense-data. J. S. Mill's thesis[4] that matter consists of 'groups of permanent possibilities of sensation' may be modernized in this way. This 'Factual Phenomenalism', as we may call it, has few supporters today and has been superseded by a 'Linguistic Phenomenalism', of which there are several variations or formulations. A common one is that any statement about a material object is equivalent to a set of statements about actual or possible sense-data; if the original asserts that the object is observed, then some at least of the equivalent statements will be categorical ones about actual sense-data, thus 'I saw his car' ≏ 'I had car-like sense-data'; but if it concerns unobserved objects the equivalents will be wholly hypothetical and about possible sense-data, thus 'There is a car in the garage' ≏ 'If you had garage-like sense-data you would have car-like sense-data'. (To express the full meaning of 'his car' in the first example would require hypothetical as well as categorical sense-datum statements.) There are interesting anticipations of this approach in Berkeley,[5] though not in his official theory, but its main development has occurred in the last two or three decades. As Linguistic Phenomenalism is by far the dominant kind it will form the main topic of this chapter, but first I will say a little more about Sensibilism and Factual Phenomenalism.

2. SENSIBILISM

Care is required in the formulation of Sensibilism, as it is easy to slip into verbal circularity or apparent self-contradiction. Thus

[1] *Mysticism and Logic* (Longmans ed.), p. 148; (Penguin ed.), p. 142.
[2] e.g. A. C. Ewing, *Proc. Aristot. Soc.*, Supp. Vol. XIX, 1945.
[3] H. H. Price, *Hume's Theory of the External World*.
[4] J. S. Mill, *An Examination of Sir William Hamilton's Philosophy*, Ch. XI and App. to Ch. XII.
[5] Berkeley, *Principles*, secs. 3 and 58.

Russell at times expressed his view as 'the thing of common sense may be identified with the whole class of its appearances'.[1] But 'appearance' is normally used to refer either to the fact that something appears or to how it appears, and so is not strictly complete in itself—an appearance is always the appearance of something which appears. And the 'its' in Russell's sentence makes it clear that it is the thing of common sense, the physical object, that is appearing. Thus the sentence is really tautological —a thing may be identified with itself appearing—and if intended as a definition it is circular. If the circularity is avoided by removing the 'its' from the definition, the result is not only too vague but seems to involve reification, treating appearances as if they were independent entities. Even if we say a material thing is the whole class of its sensibilia, the 'its' produces circularity, defining a thing in terms of parts of itself; while if 'its' is omitted it is not clear what kind of class is meant, e.g. all red sensibilia may be regarded as a whole class, but they do not amount to a material thing. These difficulties can be avoided by Price's notion of a family of sense-data; the material thing is defined as a family of sensed and unsensed sensibilia, and the family defined in terms of standard or nuclear sensibilia and distortion series.

A second terminological difficulty arises over the definition of a sensibile; though it is tempting to regard it simply as an unsensed sense-datum, that has an air of self-contradiction, like unfelt feeling. But this objection can be dismissed as purely verbal; what is really meant, as Russell makes clear, is that there exist entities similar to sense-data in every way except that they do not happen to be sensed. It is not so clear however that this answer can be accepted for the term 'appearance,' which Russell frequently uses instead of sensibile. Can one admit an unperceived appearance? When speaking of an appearance must we not be held to refer some thing appearing to some observer? In reply it might be said that strictly an appearance is to a point of view rather than to an observer; thus we may say there is a good view from Cathkin Braes without implying that anyone is enjoying it. But to speak thus is to indicate the extensive range and number of objects a person could see from the Braes, many fields, hills, woods, buildings and so on; and if the view persists unseen it is only

[1] *op. cit.* (Longmans), p. 154; (Penguin), p. 147.

because the objects comprising the view persist. The earlier objection is thus reinforced, and physical objects cannot be explained away in terms of views or appearances. The tendency of Russell to gloss 'sensibile' or 'sense-datum' by 'appearance' underlines the point, which I have already made, that sense-data are reifications of looks or appearances and so are not genuine existents; the same objection applies to sensibilia, faults like reification or circularity being obscured by the technical term but clearer when the ordinary word is used.

Granted however that there are sense-data and sensibilia, the supposition that the latter exist as entities like sense-data in all but being sensed seems to require, first, the act/object not the adverbial account of sensing, and, second, the Selective rather than the Generative Theory of the function of the sense organs and nervous system.

The first of these is obvious from the Sensibilist picture of a material thing as a family of relatively enduring existents, some of which from time to time become sensed, become sense-data. In this respect Phenomenalism has the advantage of a wider appeal for it is consistent with either account; its analyses may be in terms of actual and possible sense-data, but it may equally well list the sensings of adverbial sense-contents, and most modern Phenomenalists have taken the latter course.

Adoption of the Selective Theory seems equally necessary to Sensibilism, for sensibilia have independent existence as constituents of matter; hence sense-data, which are simply sensibilia that happen to be sensed, cannot be generated and brought into existence by the sensory and nervous system; its function must simply be to select for acquaintance one or two from the many sensibilia making up an object. Russell, however, writing before the Selective/Generative distinction became current, adopts an intermediate view. Agreeing that the sensory and nervous system, though a condition of sensing, does not generate sense-data, he thinks that it changes their qualities; the nervous system is part of the 'intervening matter' between percipient and material thing, and he holds that the appearance of a thing is a function of its matter and the intervening matter and is altered by changes in them.[1] This is all very well if one is using 'appearance' in a non-sensibilist way, but it is difficult to accept if sense-data or sensibilia are

[1] *op. cit.* (Longmans), p. 165; (Penguin), p. 157.

substituted for appearances. How can the independently existing constituents of external objects be affected by nerves and sense organs in the percipient, or by the causal process, which seems clearly from the scientific evidence to be a process from object to percipient? And yet if Sensibilism has to incorporate the Selective Theory its plausibility is thereby greatly weakened; a fantastic number and variety of actual existents has to be postulated, and it is still unclear how the selection takes place. Sensibilism in fact shares the common defect of Sense-datum Theories, inability to account for the causal processes which undeniably take place in perception.

The final objection to it is that it merely jumps out of the frying pan into the fire. Its main aim was to explain our perception of the material world without having to postulate unobservables like Price's physical occupant or Locke's matter, but in fact sensibilia are unobservable in almost as undesirable a fashion. They may seem observable in view of that claim that when sensed they are revealed to us as sense-data and that sensing them is just observing them. But the point is that this is just speculation. There is no evidence that anything, much less this kind of sensible, exists when the appropriate sense-datum is not sensed. A 'sensibile' is just a name for whatever we suppose persists and fills the gaps between sensory observation; but it makes no difference to the sense-data actually experienced what nature we attribute to the gap-filling entities, or whether indeed we admit there are any. To observe that an unsensed, i.e. unobserved, sensibile fills the gaps between observations is a logical impossibility; and as this fact is unobservable, the claim that the sensibile itself is observable, that the entity observed in sensing persists or pre-existed unsensed, is simply a speculative hypothesis on a par with that of the physical occupant. The common-sense notion of persistent physical objects is not open to this objection. That a chair continues to exist during the gaps in X's observation of it, can be observed and established by Y's continued observation of it during those gaps and during the periods of X's observations. But as a sense-datum or sensibile is private to a person or viewpoint and cannot be observed by two people at the same time, an observer cannot obtain this sort of confirmation of its existence whether sensed by him or not.

3. FROM FACTUAL TO LINGUISTIC PHENOMENALISM

Factual Phenomenalism asserts that a material thing consists of a family of actual and possible sense-data (or sense-contents), or, when it is not being perceived, simply of possible ones. This doctrine is further removed from common sense than is sensibilism, for the gap-filling entities of that theory were at least actual existents; but we are now invited to believe that when an object persists unobserved, still continuing its causal effects, it consists merely of possible ones. However, as this view has been almost entirely superseded by Linguistic Phenomenalism, it will be best to indicate why the change has occurred and then discuss the difficulties of Phenomenalism with respect to the dominant version, merely mentioning in passing how they affect the other.

There are several reasons for this supersession. One is no doubt the general tendency in modern philosophy towards preoccupation with language, illustrated here by the principle that philosophies of perception are not theories to explain the facts but languages to state them more clearly and precisely, and less misleadingly, than ordinary language. Thus it is argued that Factual Phenomenalists were mistaken in thinking that they had two kinds of entity, material things and sense-data, and in thinking that they had to discover the relation between them and state it in an analysis; there is merely one set of facts or existents, which can be described in two languages or terminologies, one with 'material thing' and the other with 'sense-data' as a key term. In this way Phenomenalism becomes a statement of the equivalences between two different terminologies. But despite its influence this principle does not seem to be essential to Linguistic Phenomenalism. One might still hold that Phenomenalism was an attempt to reduce the world to, or explain it in terms of, the only realities of which we have direct knowledge, namely sense-data or sense-contents, and yet regard the Linguistic version as much less misleading in that it uses the hypothetical *form*, and not the *terms*, of its propositions to express the possibility of sensing when no sensing occurs. At any rate the wider linguistic principle raises such important issues that I will deal with it separately in Chapter V; and there are other reasons for the change that can be appreciated without it.

One can understand, for example, the need to avoid the absurd suggestion that possible sense-data are constituents of material

things. Thus no one is at the moment observing, or has for some time observed, the joists supporting the floor of my study, but to judge from the absence of alarming symptoms they are still there and performing their function; yet on the suggested analysis they consist of nothing actual while unobserved and are but families of possible sense-data. But how can mere possibilities, or anything consisting solely of them, support a floor? And this absurdity is intensified if the possible sense-data are understood adverbially as possible sense-contents in someone's mind. The objection is not just that the theory is odd or unusual. When we say, for example, that a thunderstorm is possible we imply that it is not actually thundering here and now—otherwise our remark would be ridiculous. On the other hand to say that X is composed of S is to imply that S is as actual as X: 'there is a glass bowl in the cupboard' implies that the glass of which it is composed is actually in the cupboard. Hence the absurdity of Factual Phenomenalism is due to the contradictory elements of its analysis. Assuming X actually exists, then to say that X is composed of S implies S actually exists; but to say that S is possible implies that S does not or may not actually exist. So to say a material thing is composed of possible sense-data is to treat a possible sense-datum as an actual component.

Clearly Phenomenalism must be reformulated if it is to survive, and it is therefore suggested that hypothetical statements about (actual) sense-data be substituted for categorical ones about possible data. Thus 'There are joists under this floor, although we don't see them' means not that there are possible joist-like sense-data actually under this floor, but, 'If you were to look under the floor you would sense joist-like sense-data'. This may be inadequate as an analysis, but at least it is not absurd or self-contradictory.

More is needed, however, for one must reinterpret not only 'possible sense-datum' but also 'family' or 'group' of such data. This is usually done by indicating a set of propositions about them: if the object is observed, there will be categorical sense-datum propositions to correspond to the actual data obtained, and, in addition, a larger set of hypothetical ones corresponding to the various data obtainable when observing the object; if the object is not being observed the set will consist wholly of hypothetical propositions. Thus our example about the joist would have to be expanded: 'There is a joist under the floor' 'If you look under

the floor you will get a long dirty-brown visual sense-datum of the type you get when you look at beams of wood; if you feel there you will get a rough sense-datum and a feeling of resistance . . . etc.'

Now there are several points which require discussion here. First, the awkwardness and difficulty of such an attempted analysis. It is not easy to describe any sense-datum without referring to other material things to make it clear what is meant, nor can we readily differentiate one datum from another; thus as you moved along or across the beam you would get many data all differing slightly, but you could not give them different descriptions. Hence it is a relief to write down 'etc.' after an example or two, and we cannot borrow from exponents of the theory for they have been notoriously shy about giving extended analyses. And such inadequate analyses as we can invent seem circular in that we cannot describe the sense-data solely in sense-datum language.

But while Phenomenalists admit their failure to produce more than sketches of translations, they refuse to admit the charge of circularity. Poverty of language is usually pleaded in defence: we have in practice to refer to physical objects for identification because language was developed to describe such objects not sense-data. 'I suppose that a suitable vocabulary could be invented if some ingenious person thought it worth his trouble',[1] but it is not worth it as the Phenomenalists' programme can be carried out in principle. Now admittedly a sense-datum is no less a sense-datum for needing reference to a material object to identify it. The reference does not make it a material object and so Factual Phenomenalism is not affected. But can the Linguistic view so easily dispose of linguistic impossibilities? Certainly it is strange that in its more radical form it should claim that the Sense-datum Theory is a language, indeed one logically prior to ordinary language, and then admit that with rare exceptions there is no pure sense-datum language; to make their theory plausible these ingenious persons should surely produce a language free from material-object taint. And the admission is dangerous even for the moderate Linguistic Phenomenalism. It is out to show that a material-object statement can be translated into a set of statements mentioning only sense-data; but most of the set of sense-datum statements offered mention material objects, and as this seems unavoidable the theory is unsuccessful.

[1] A. J. Ayer, *Philosophical Essays*, p. 134.

The analyses usually propounded have another important defect, however; they are unsystematic. In Factual Phenomenalism, and especially in that large part of Price's theory which could equally well be adopted by it, the family of sense-data is not simply a haphazard group; it is a system, made up of interlocking nuclear data and of an ordered distortion series of data corresponding to regular changes in point of view. The detailed working out of this structure was one of Price's major contributions to the Sense-datum Theory, and if this advance is not to be disregarded, the corresponding sense-datum statements of the Linguistic version must be an ordered set, indicating how the sense-data described in the apodosis will vary with change of viewpoint registered in the protasis. Indeed it is only because there is this ordered change that, if pressed, we should feel confident in saying that we were perceiving a material thing and not suffering from hallucinations or wild sense-data. But the scanty apologies for analyses put forward by Linguistic Phenomenalists are far too brief to indicate this systematic ordering of sense-data. Some Phenomenalists are quite oblivious of this, and though Ayer realizes the importance of relations between sense-data, he does not make it clear how their pattern is to be expressed in the translations.

Much more widely recognized is a third problem about the Phenomenalist programme. It is maintained, or at least was at first maintained, that the set of sense-datum statements is equivalent to the material object statement. Indeed, it was claimed that they therefore form a 'definition in use' of the material object statement and that the equivalence is so exact as to involve mutual entailment. This was an understandable claim; Factual Phenomenalism claimed that the material object was the family of sense-data, neither more nor less, and so the Linguists would want to bring out this point by stressing equivalence. But all of them have now abandoned the claim,[1] and the reasons for the retreat must be understood.

One reason is that, like the corresponding family, the set of sense-datum statements will be infinite, because there is an infinite variety of conditions (positions, viewpoints, lights, media, etc.) under which the object can be observed. Each one of these will give a slightly different sense-datum, and so each should be

[1] Compare p. 24 and Ch. III of Ayer's *Language, Truth and Logic*, 2nd ed.

mentioned for a fully equivalent analysis or definition of the material object statement. But this would be impossible; in finite time one cannot list all members of an infinite set. However, the theory can meet this by giving a definition in principle: it could indicate the salient points of view and add that between them there will be a gradation of data corresponding to a gradation of viewpoints; and similarly for the other conditions. In this way one could grasp the principle or schema of the analysis, and see that it requires nothing but sense-data and that hence the basic position of Phenomenalism is maintained. In practice no Phenomenalist gets as far as this; they assume that it will be clear from an example or two that only sense-data are needed.

Secondly, even if we adopted a practicable schema for drawing up the set of sense-datum statements, there would still be no mutual entailment between the set and the material object statement. In the first place the set of sense-datum statements might be true and yet the material object statement be false, for we could not get the absolute certainty, required for entailment, that the sense-data were not due to hallucinations or fakes of some kind. However, this would hardly be very serious provided the schema were full enough; if it covered tactual data and simultaneous data of different observers (points not usually considered by Phenomenalists) the truth of all the sense-datum statements would be conclusive empirical evidence of the truth of the material object statement, and the only possibility of its falsity would be a logical one. On the other hand the analysandum might easily be true and yet many of the alleged sense-datum statements be false. Thus 'There is a car in the garage' might be true, and yet if you go to the garage you might not get car-like sense-data: the light may have failed so that it is too dark for you to see, or the fumes might make you dizzy. This is particularly important if the object is not large and obvious like a car. It would be rash to assert that 'There is a screw on the floor of the garage' entailed or even had as a reliable practical inference, 'If you look on the garage floor you will get sense-data belonging to a small screw'. Perhaps some of the conditions, like good light, could be put in the protasis, though to put them in sense-datum language would be fantastically difficult, but it is always logically and practically possible that whatever conditions you state some have been overlooked. And it is difficult to cater for the fact that some people are very bad at finding what

they look for; to say 'if you look properly you will see' smacks of circularity.

A third reason is the vagueness or indefiniteness of material object statements; there is a number of different situations which could all truthfully be described by any one of them. Thus 'There is a car in the garage' does not specify anything about the car's colour, size, shape, style, make and so on. Hence if you start to draw up a sense-datum analysis there is a large variety from which to choose, and you might choose wrongly—a problem which is shirked by short cuts like 'car-like sense-data'. If we say 'red sense-data' and the car is blue, then the sense-datum statement will be wrong despite the truth of the original. And if we say 'you will get red or blue or green, etc., sense-data' then either by listing all alternatives we shall say nothing (car or no car you will get sense-data of some colour) or we may miss out the appropriate one—and the manufacturers may even have thought up a new shade. And even if one is right about colour or starts with 'There is a red car', then similar difficulties arise for shapes and styles and so on. Moreover with long lists of disjunctions it would be difficult to be confident that some combination of elements might not be true and yet the original statement false.

Although not usually recognizing all these arguments, Phenomenalists have been sufficiently convinced by at least one of them to abandon the claim to equivalence. They have therefore suggested modified aims for their theory, and I shall consider an important statement of these, that of Ayer.

Before doing so I should mention that Ayer has disavowed Phenomenalism in his latest book, *The Problem of Knowledge*,[1] but the reason given for its rejection is simply that no mutual entailment is possible between a material object statement and a set of sense-data ones. Unfortunately he does not explain his attitude to his other works in which equivalence is similarly denied but Phenomenalism is defended in a revised form. His main position now is that 'in referring as we do to physical objects we are elaborating a theory with respect to the evidence of our senses'.[2] But this view was also stated in an earlier essay in which a version of Phenomenalism was defended.[3] These latest remarks of

[1] Macmillan edition (1956), p. 139; Penguin edition, pp. 124–5.
[2] *ibid.*, pp. 146–7 (Macmillan); p. 132 (Penguin).
[3] *Philosophical Essays*, p. 165.

Ayer's are anyhow brief as well as puzzling, and I shall therefore concentrate on the modified Phenomenalism expounded at length in his earlier works; even if he himself now disowns it, I think it is the best statement of a theory which is by no means universally defunct.

4. PHENOMENALISM WITHOUT EQUIVALENCE

At times Ayer has maintained that the purpose of Phenomenalist analysis is to 'provide a general elucidation of the meaning of statements about material things by showing what is the kind of evidence by which they may be verified'.[1] The assumption here is that to know the meaning of a statement you must know how it is verified, or that its meaning is the evidence for, or (more usually) the method of, its verification; a corollary of these statements is the Logical Positivist Verification Principle that an in principle unverifiable factual statement is meaningless. But any attempt to make Phenomenalism conditional on the acceptance of such a criterion of meaning would be to weaken it and to narrow its appeal. After all Logical Positivism is an extremist view, and one that has frequently been criticized. While a full discussion would be inappropriate here, I may say briefly that any attempt to link meaning and verification in this way is unsatisfactory for three main reasons. First, it seems purely arbitrary and does not do justice to what is normally meant by 'meaning'; we normally accept a large number of unverifiable and apparently factual propositions as meaningful in religion and ethics. And if the principle is offered merely as a recommended criterion, there seems little to justify adopting one that would condemn as senseless much we regard as meaningful. Secondly, the key terms in it are vague, especially 'verify'. It is arguable that material object statements can never strictly be verified because they can never be absolutely certain, yet to say 'weakly verify' or 'render probable' is to be vaguer still. Usual attempts to render 'verify' precise and workable either allow too little or too much as meaningful or else are too cumbersome to be any use. Nor can the meaning be the method of verification, for the verification of a factual statement may vary greatly with one's situation and circumstances or the means available, while the meaning will not so vary. Thirdly, the principle puts the cart before the horse; it claims that a proposition

[1] *FEK*, p. 235.

is meaningful only if verifiable, but how can one decide whether it is verifiable, or how to verify it, until one knows what it means?

Apart from such general objections, however, Ayer has scarcely provided an acceptable aim for Phenomenalism. The ordinary empirical verification of or evidence for material object statements often bears little resemblance to the Phenomenalist analyses he hopes to save. It rarely requires more than a few direct observations or sense-data, and often involves causal arguments—sometimes in fact these are quite unavoidable. Thus one could verify that there were joists under the floor by one look underneath, plus perhaps one touch of a joist; this would be very unlike the long Phenomenalist list, and verification would not be assisted by multiplying the looks or touches, i.e. by constant repetition of the same kind of evidence. And in cases like 'There is 1 per cent arsenic in this fluid', 'There is a small current flowing in this wire' or 'The magnetic field is more intense here than there', causal arguments from meter readings or the behaviour of instruments seem unavoidable, and direct sensory observation is impossible. Even if, despite the usual objections, the causal arguments could be analysed into statements of regularities of sense-data, that would not help; such regularities or arguments do not occur in the Phenomenalist analyses it is hoped to save, and anyhow involve material objects other than the original analysandum.

Furthermore this modified aim seems to involve watering down Phenomenalism until it is quite innocuous. That is particularly so if, to avoid the difficulties of causal arguments, it is simply stated as the indication of the kind of evidence, direct sensory observation, by which material object statements *may* be verified. But even in a stronger form 'by which they *are* verified', and in cases where causal arguments are not at issue, the modification robs Phenomenalism of its distinctive character, namely its claim that material things are nothing but sense-data or that what is meant by a material object statement can be expressed without loss in sets of statements about sense-data. One could hold that material objects contained physical occupants, or were the unknowable causes of our sense-experiences, or were congeries of imperceptible atoms and electrons, and still allow that direct sense experience verified statements about their existence and properties, particularly if 'verify' means 'provide good evidence for' or 'render highly probable'. Visual, tactful and olfactory sensings by enough people

would quite 'strongly' verify that there was a red rose in the vase; but fancy would be free as to what a rose, *qua* material thing, really was, or as to what was meant by saying it was a material thing.

Nevertheless one can find in Ayer's works a different and more plausible reformulation of the aims of Phenomenalism. He seeks to show the 'relations between sense-data that make it possible for us successfully to employ the physical terminology that we do'. This quotation is from *Foundations of Empirical Knowledge*,[1] and an important part of the book is taken up in showing, on Humean lines, how belief in the unity, publicity and substantiality of material things is grounded on the relations which hold between visual and tactual sense-data—thus on p. 252 it is claimed that one of the grounds for attributing substantiality to things is that groups of sense-data are 'systematically reproducible'. A similar line is taken in his *Philosophical Essays* (p. 142), and it is further developed there (p. 165) where he suggests that 'the solution of the "problem of perception" may be to treat our beliefs about physical objects as constituting a theory, the function of which is to explain the course of our sensory experiences'. He does not say whether it might be a true belief and theory, but on his earlier view it would not be; there is no question of allowing that material objects might be entities existing as well as sense-data. The point is rather that we can speak as though material things existed but that is simply a convenient terminology or conceptual device for organizing our sense-data, a shorthand rendered profitable by the recurring relations of sense-data or rather sense-contents. The only basic realities are the sensings with their sense-contents (Ayer adopts the adverbial not the act/object analysis); but these occur in patterns or regular sequences and groups, and so we do not have to mention each individual one but can speak of the patterns or inter-related groups, the 'material objects'. Such an object is no more an extra entity over and above the inter-related sense-data to which it refers than a flock is an extra entity besides the sheep composing it.

In this way one can easily speak of possible sense-data or sense-contents. They are not queer entities existing at the time of speaking; they do not exist at all. But a pattern distinguished in the flux of sense-data will at any moment be only partly actual; the

[1] p. 243, cf. p. 232.

rest will be past or still to come, and though obtainable may not in fact be obtained and actualized. Nevertheless we can distinguish the pattern and it is profitable to speak of it as an actual existent even when many of its parts do not at the time actually exist. Furthermore, exact equivalence between a material object statement and a group of sense-datum statements is not required. So many are the detailed variations in the patterns and sequences of our sense-data or contents, that if the material object terminology is to be useful to any one of its items, it must be able to apply to a range of distinguishable patterns; it must have a deliberate indefiniteness or 'open texture' which prevents exact equivalence. Thus the term 'car' is useful because it picks out certain generic features common to the sequences of sense-data we call 'seeing a car', but if we examine them carefully we see that each is slightly different; hence if the relation between 'car' and the sense-data were as exact and precise as definition or mutual entailment required, we should need a new word for each sequence. But though exact equivalence is thus rejected in favour of a 'generic equivalence', the essence of Phenomenalism is retained, for the material object word refers to nothing more than sequences or patterns or inter-related groups of sense-data.

I suggest that this Pragmatic Phenomenalism, as we may call it, is the only plausible way of stating Phenomenalism, and is to be found in essentials in Ayer's works. Nevertheless he might quite well disavow it on various grounds: it might be held to be not linguistic enough, or to be insufficiently purely linguistic, being concerned with more than the matching of statements and languages; it makes material objects seem mere fictions or *entia rationis*, contrary to his explicit statement;[1] and it fails to do justice to the importance of the verification principle in Phenomenalism. The last objection can be briefly dismissed—Phenomenalists should be grateful for being rescued from that principle—but the others are more important. As to the first, with his continued insistence on the references of sense-datum words and on the relations between sense-data, and with his cavalier attitude to the shortcomings of the sense-datum language, even Ayer is not as linguistic as he seems. Indeed, it does not seem necessary to link this Pragmatic Phenomenalism to the linguistic approach to philosophy. One might restate it: material objects have no real

[1] *Philosophical Essays*, p. 133.

existence as entities over and above sense-data, but though 'table', 'chair' and other material object concepts have in this way no exemplification, they are valuable co-ordinating concepts for organizing and identifying patterns and sequences of sense-data. The material object language would then simply be the verbal expression of these concepts, and one would interpret the sense-datum analysis of material object statements as being the indication and expression of the types and patterns of sense-data falling under the concepts. As to the second objection, if Ayer does not allow that material objects are fictions, it must be that he is thinking of them as patterns or inter-relations of sense-data; but Pragmatic Phenomenalism would equally admit them as real in this sense. In denying that material objects exist it means material objects as ordinarily understood, i.e. as substances over and above sense-data which persist and exercise causal properties independently of their being perceived. To say that these are not fictions is to abandon Phenomenalism completely.

But whichever formulation of Phenomenalism is preferred, there are certain general requirements which the analyses should fulfil. The first is that of purity: the analysis must solely concern sense-data or contents and not be tainted by references to material things. In Factual Phenomenalism the material object must be shown to be composed wholly of sense-data: in Linguistic Phenomenalism the analysis must be solely in sense-datum language or consist entirely of sense-datum statements; and in the Pragmatic version patterns solely of sense-data must be adduced as rendering the concept (and so the terminology) of material objects profitable. Secondly, the analysis must account for the main characteristics of material objects, namely publicity, persistence and causal properties. Can these be expressed fully in sense-datum language, in sets of sense-datum statements? Are they attributable to families of sense-data? Is it possible to point to inter-relations between sense-data which will fully justify and explain the profitableness of our conception of objects with these characteristics?

In the next two sections we shall consider criticisms which allege that Phenomenalism has failed to meet these requirements. Then in the final section we shall return to the difficulties about the relation of actual and possible and consider their applicability to all forms of Phenomenalism. For Linguistic formulations this

problem appears under the guise of that of the logical relation between categorical and hypothetical propositions, since the element of possibility so troublesome to Factual Phenomenalism has by them been transferred from the terms of the propositions in the analysis to their form, so that we are offered hypothetical propositions not possible sense-data.

5. OBSERVERS AND LANDMARKS

The question of purity has already arisen concerning the sketchiness and apparent circularity of the analyses offered by Phenomenalists. We noted how strangely content they were with 'car-like sense-data' or similar phrases, and how difficult it is to differentiate or identify sense-data without referring to material objects. The reply was that our language is poorly equipped to deal with sense-data because it was developed to express material object concepts, and that this difficulty is not a serious one for we can see that only sense-data are being referred to, even if for practical purposes we identify them by means of material things. Now even if this reply can be accepted for the apodoses of the hypothetical propositions usually offered, it may still be rejected for the protases. In 'If you go to the garage . . .' 'you' and 'the garage' are not mere conveniences for identifying sense-data, but play an essential part; the same applies to 'an observer' in 'If an observer went to the garage. . . .'

We may develop this objection as follows. First, in so far as the observer (including 'you') is a person with body or sense organs he is a material object; hence the analysis is impure being of the form 'MO_1 = if MO_2 then SD'. And in so far as not simply material the observer would normally be regarded as a continuing self having various experiences, and so as more than simply a sequence or collection of sense-data. Some Phenomenalists would indeed try to analyse the self also into sense-experiences, on Humean lines; but this seems to be to reify experiences, which surely cannot just happen in the void but must happen to someone. Secondly, the observer's nerves and sense organs have to work correctly; otherwise the sense-data may not occur, and the hypothetical proposition may be false, even though the original material object statement is true. One should therefore add a further protasis to express this condition, and that will have to

mention these material parts of the body. Similar difficulties can be raised about other standing conditions, e.g. adequate lighting. Thirdly, the garage, or other place or landmark by which the observer is directed, seems an ineradicable material object word in the analysis; if we try to analyse it in terms of sense-data the attempt requires reference to some other landmark in its protases, and so on. And for completeness we should have to say in which direction the observer should look in the garage (if he looked out of the window he would not see the car), and so parts of the garage must be mentioned too. Similar complications arise about time, especially in the analysis of material object statements about the past, but it is not necessary to elaborate them here, for their principle is the same.

Some ingenious suggestions have been made for avoiding these difficulties about places and landmarks: one might give directions like 'If you walked fifty paces north from here and then looked east, you would get X sense-data', the paces being analysable into kinaesthetic data. But north is defined in terms of the direction in which a compass needle points or as the opposite to the direction of the sun at noon—in other words, it cannot be defined without reference to material objects. Another suggestion is that the route might be described by an account of intervening sense-fields: 'If you got sense-field A, then sense-field B . . . then when you had sense-field X you would get car-like sense-data'. But apart from the unbelievable complexity, this would fail in that the route to the garage is an extraneous consideration; one can understand the original material object statement without knowing anything about the route, or when quite wrong about it.

A more plausible solution for these difficulties is offered by Ayer.[1] The first two objections are turned by denying that any reference to 'you' or 'an observer' is necessary or relevant to the analysis. All that is required is that if some sense-data occur then so do others, but it does not matter to whom they occur or as the result of what processes. To meet the third objection it is enough merely to set the scene, to describe the sense-data which would comprise the required view of the garage. To identify the garage in question and many of the sense-data concerned we may have to use material object words, but that would be purely auxiliary, an admissible convenience like 'car-like sense-data' in the apodosis.

[1] *Philosophical Essays*, p. 163.

Consequently we should exclude all references to observers or landmarks from our analyses, and 'There is a car in the garage' becomes 'Given interior-of-garage-like sense-data, then car-like sense-data will occur'.

This is attractively neat, but on reflection seems too simple. It has no complete answer to the second objection, that one cannot avoid reference to the standing conditions, including those concerning the functioning of the observer's senses. Certain conditions, e.g. that the garage is suitably lit or that the observer is not blind or struck dizzy or unconscious, might seem to be met. If these did not hold there would be no interior-of-garage sense-data either, and so there would be no danger of the analysis being inadequate by being possibly false while the original material object statement is true. But, as we have already mentioned, there is a danger of being lulled into a false sense of security by continual analysis of statements about large objects like cars or horses. There might be enough light for interior-of-garage sense-data, but not for screw-on-the-floor sense-data. Again when the observer is short-sighted or a poor searcher who gives up after a glance or two, it might well be that he gets garage but not screw-data. Hence we should still seem to need provisos about the standing conditions, the abilities of the observer and the functioning of his sense-organs; otherwise the analysis offered may well be false when the analysandum is true. One might be able to include the standing conditions in the description of the scene, e.g. 'Given brightly-lit-interior-of-garage sense-data' though that would be vague for all its complexity. ('How bright?' one may ask; and what is really meant is the circular 'bright enough to see small screws'.) But if one is going to rule out all reference to the observer one can hardly include the required provisos about him.

We must admit, however, that this objection has only a limited force against Phenomenalism. It applies only to a modest group of statements, those about small objects for example; though this is still serious in so far as Phenomenalism claims to dispose of all material object statements. More important, it only succeeds in showing that the analysis may be false while the original is true, and so seems to be directed mainly against those who claimed absolute equivalence. Ayer takes it seriously, however; rightly, I think, because even without full equivalence a Phenomenalism which claims to give the meaning of or evidence for a material

object statement is hardly successful if the propositions it produces are false when the original is true. Pragmatic Phenomenalism might seem to escape; it might be enough that given garage-like sense-data car-like or screw-like sense-data will usually occur, for the frequent occurrence of car-like sense-data will render the concept of car useful, and similarly the frequent occurrence of the two groups of data together gives us the concept of A in B, of car in garage. But as soon as one passes from concepts to statements the same difficulties arise as on the usual Linguistic version. How can 'There is a car in the garage' be a useful or successful way of referring to groupings of sense-data, if it is a true statement (or so we believe) on occasions when the groupings do not in fact occur and sense-datum statements expressing them are false? Indeed how could we ever imagine the material object statement to be true in these circumstances?

Factual Phenomenalism is not worried by the objection, however, for whether or not the sense-data forming the car or screw families are actually sensed by any particular observers does not affect the claim that the families consist only of actual and/or possible sense-data; it merely alters the proportion of actual to possible in the family. By contrast the extreme Linguistic version, that there is a sense-datum language logically prior to material object language, is in the greatest difficulty of all on the question of purity, since it ought not to admit even the use of material object words as a way of identifying sense-data in the analysis.

6. THE PUBLICITY AND PERSISTENCE OF MATERIAL OBJECTS

It is objected that the Phenomenalist analyses cannot do justice to three characteristic properties of material objects, viz. publicity, persistence and causal efficacy; of these the last is the most important. I shall take each of the properties in turn, and in the main consider Ayer's attempt to deal with the objection.

First, it is agreed even by Sense-datum Theorists that material objects are public, while sense-data or contents are private to the percipient. How then can patterns or groups of private sense-data amount to a public object, or how can sets of statements about them give the meaning of a statement about a public object? Or,

if private data are the only realities, how can our ordinary language or concept of public objects be profitable?

Ayer claims that the force of this objection is dispelled if we attend to the criteria by which we judge that two persons are seeing numerically the same thing.[1] The criteria are, first that they agree in their description of what they see, and secondly that they agree as to its spatial position. This agreement can easily be stated in sense-datum language for any given situation: thus A and B are both seeing the same picture if they each give the same description of their respective private sense-data, if they locate the picture-data similarly with respect to other data in their respective private sensefields (e.g. above mantelpiece-data), and if when A gets visual and tactful data of his finger touching the picture B gets visual data of A's finger touching the picture. Hence the publicity of the picture is not the sign of some entity other than sense-data; it can be expressed fully in statements solely about sense-data, indeed it is just a convenient shorthand for referring to the relations between sense-data tested and exhibited by the application of these criteria. (Similarly Factual Phenomenalism can claim that all the publicity of material things amounts to is that two or more people can get sense-data belonging to the same family, though that is open to the difficulties discussed above, Chapter III, §3).

Two points may be made in reply to Ayer's analysis of the publicity of material objects. The first is that it requires the introduction of observers, and so will be open to the full force of the difficulty about purity. One cannot cut out the observers, for if one says, for example, 'Given two sets of wall-over-mantelpiece data, then two similar sets of picture data will occur', that will be compatible with other situations besides the one intended. It will fit one observer suffering from double vision, or, as simultaneity is a physical concept not capable of sufficiently precise sensory expression, it might fit two slightly different views of the object by one observer. It is publicity between two observers, not between two views of one observer, which is required; but that cannot be stated without introducing observers. It is unfortunate that Ayer has not attempted to square his observer-less reply to the observer's body objection with his discussion of the publicity problem.

Secondly, the continual agreement of descriptions and spatial references of private data is incredible unless the data are the

[1] *FEK*, p. 159.

result of there being some one public object perceived by the two observers. A theory of perception must surely be able to explain why such agreements are so common in perception but scarcely ever occur with other private data such as pains or dreams. And this cannot be explained except by supposing either that the coinciding data are caused by some one public object, or that they are not numerically distinct private data at all but are just one object perceived by two persons; whereas dreams and pains do not agree, except rarely and accidentally, because they are genuine private data without common cause. Phenomenalism can accept neither supposition concerning the agreement in perception (the first postulates public existents over and above sense-data, while the second denies the existence of sense-data); it must therefore fall back on the postulation of an incredible series of coincidences or else bring in a Berkeleyan *deus ex machina* as the author of this harmony of sense-data in perception.

The second objection from the characteristics of material objects is that they are relatively permanent objects while sense-data are relatively transitory; their life is measured usually in months or years, while sense-data last for a minute or two at the most. So how do transitory sense-data form the sole elements in enduring objects, or how do sense-datum statements convey all that is conveyed by a material object statement? The strongest point of this objection is that we think material objects endure when they are not being observed and no sense-data 'belonging to' them actually occur. This is, of course, the initial problem of the fragmentariness of sense-perception which was the starting point of Phenomenalism, and so in a way the whole chapter is a discussion of it. We may conveniently discuss one point here, however. If he is not, as in the unplausible Factual version, to postulate the persistence unobserved of queer actual existents like 'possible sense-data', the Phenomenalist must point to sequences of sense-data as the basis for the supposition that material objects exist unobserved; this supposition is then alleged, either to mean merely that these sequences are or can be obtained, or to have no evidence but these sequences and so be a convenient fiction for referring to or dealing with them. Hence Hume points to the constancy and coherence of sense experiences, and Ayer to reversible series of sense-contents. But much the same criticisms can be advanced against these sequences as against those used to analyse publicity.

Thus the continual recurrence of these sequences of data, with accuracy of detail and reversibility, is an unexplained series of coincidences, unless it is due to the persistence of the cause or unless the data are merely different and transitory views of a persistent object. It might be claimed, however, that the observer objection does not apply—reversible series of data are all that is needed and the observer need not be mentioned. To this we may reply: (i) In his original account of these series of data Ayer laid stress on 'the dependence of this repetition on the movements of the observer'.[1] Perhaps these movements and their changes in direction could be described unambiguously without reference to persons and landmarks, but this would not be easy. (ii) When we wish to verify that an object has persisted while we have not been observing it, the strongest evidence would be that of some other person who had observed it all the time. And to express this in sense-datum language would involve mention of observers and an impure analysis.

Arising out of this is a general criticism of the attempt to analyse the persistence of material things in terms of recurrent and reversible series of data, namely its artificiality. It is difficult to conceive that anyone would query the materiality of Ayer's study if he saw it, or would verify it by a reversible series of data. If he thought he had an hallucination of a study, or was dreaming, more convincing tests would be the evidence of others and of causal continuity (try the 'phone or the electricity, open the door, etc.). At any rate, when real life questions arise about persistence unobserved by the questioner, they are settled by such criteria rather than by reversible series. Thus 'Has the cat been in the room all the time I've been out?' could be answered by an observer who had been present all along, while 'Is the ice still blocking the pipe?' could be settled by turning on the tap. Realization of the persistence of causal effects and comparing notes with other observers seem more likely origins for the notion of persistence and better confirmation of it.

7. CAUSAL PROPERTIES

The very important objection that the causal properties of material objects cannot be analysed wholly in terms of sense-data can be

[1] *FEK*, p. 259.

made in two stages, the first assuming the truth of certain non-Phenomenalist theories of causation and the second assuming the Phenomenalist view of it. Thus in the first it is argued that a proper analysis of the causal relationship involves more than the observed regular sequence of cause and effect. One must suppose that the effect is brought about by some power or force in the cause which compels it to happen, or alternatively that there is some necessary connection between cause and effect, this connection being the temporal expression of the relation of ground and consequent. This power or force may not be observable, may not be reducible to sense experiences, and so must be inferred to exist or be apprehended by some special insight; and a necessary connection cannot be observed by the senses, but must be grasped by rational intuition. So if either of these views is correct the causal properties of material things cannot be reduced to relations of sense-data.

Phenomenalists reject these theories of causation, however, and usually hold a Regularity Theory, which is a simplified and de-psychologized version of Hume's view. Thus 'C causes E' is to be analysed into the law 'Whenever C occurs, E occurs', for all we can observe in a causal situation is the effect following the cause; if this succession is regular we are entitled to assert this law, but nothing more. To maintain that causes exert a compelling power or force on the effect, in so far as it is intended to mean more than mere regularity, is just superstition; it is a relic of primitive animism or the projection into inanimate things of our experiences as agents, for it is unsupported by evidence. Likewise the assertion that there is necessary connection between cause and effect is unproven, and it is due to confusions about identity or to an illegitimate transfer of the logical relation of entailment from relations between propositions to relations between events in the world. Thus causal relations can be analysed wholly into sequences or correlations of sense-data, and that is all that Phenomenalism requires.

A proper assessment of this answer would involve too long a digression on causality, and I will merely explain my dissatisfaction with it; the theory seems too simple in that one may still wonder whether there is not some underlying reason for or cause of the regularities—one would expect them to be merely symptoms. But the main difficulty is that it seems too visual. Take the

favourite example: one billiard ball hits another and sends it across the table. The Regularity Theory says that all we can observe is the first ball approaching the second, its coming into contact with it, and then the latter's movement across the table; we can repeat the process as required, but all that we have reason to assert is a regular succession of approach, contact and movement away. But though this is all we can *see*, we can observe more if we put our finger in the path of the moving ball; we can then feel its power or force. Similarly we can feel the force of the wind, the pull of the current or the heat of the fire, visual observation being inadequate here also. Hence it is reasonable to suppose that, whenever we see the wind or the river or moving objects acting on other things, they are exerting a similar force; we have no right to deny this because we cannot see the force. This is not animism or projection; it is not suggested that the objects affected feel the force, but simply that they are impelled by it; though we being animate, may feel as well as be impelled. Nor do we need to suppose that the force is necessary or irresistible—Hume wrongly equated power, force and necessary connection. So far, it might be replied, these suggestions are not incompatible with Phenomenalism but merely widen the scope of the actual and possible sense-data needed for the analysis. But there is a real clash, for the force is supposed to persist and to act when unobserved by us —to be actually exerted when no actual sense-data are obtained from it. The claim that it consists of merely possible sense-data in such circumstances raises the difficulties of the second stage which we come to in a minute. Further one might reasonably generalize the suggestion and suppose that analogous forces exist in all causal relations, even where we cannot, as well as do not, feel any force, i.e. where there are not even possible sense-data.

However, the main causal attack on Phenomenalism lies in the second stage, which can be developed *ad hominem* on the assumption that the Regularity Theory is correct. The objection is that, where causes are unobserved, Phenomenalism has to suppose that actual observed effects are due to causes which are nothing actual at all, but are mere possibilities of sensation or hypothetical facts of the form, 'Given certain other sense-data, sense-data appropriate to the cause will occur'; and that this is absurd.

The importance of this objection lies in the scope of unobserved

causes: our concept of an objective physical world and our whole system of scientific knowledge seem to require the recognition that there is continual action and reaction between physical objects, and that this occurs independently of our perceiving it. Even the philosopher's table in the next room is part of this continual dynamic process: it is denting the carpet, supporting a cup and saucer, collecting dust, reflecting light and absorbing heat, and vibrating perhaps from traffic; it is composed of myriads of interacting particles, and its unity depends on forces of internal cohesion and on resistance to stresses and strains. None of this may be observed, yet we accept it, just as we believe the sun is radiating light at night, that there are joists supporting the floor or pipes carrying water under the street. We believe such things because we can observe the effects continuing when the causes are hidden, and because they are in accordance with a system of scientific and empirical laws without which our actual observations would be inexplicable. But Phenomenalism seems to have to deny that these unobserved causes are actual at all.

We have seen this absurdity in Factual Phenomenalism: if the causes are to be analysed in terms of possible sense-data only, then they are mere possibilities and the effects are produced by no actual existent. But Linguistic formulations are little more successful. 'This floor is supported by (unseen) joists' is analysed into a set of statements of the type, 'If we had data of removal of floor boards, we should then have joist-like data', also perhaps, 'If data of removal of joists were obtained, then data of collapsing floor would be obtained'. But if that is all that is meant we can say: 'True, but that is *because* the floor is supported by joists. We have been given not an analysis of the original statement but only some innocuous empirical inferences from it that anyone could agree with.' The sting of Phenomenalism lies in the further claim, implicit, or explicit, that these hypotheticals give the full (or almost the full) content of the original; but this cannot be so, for the original referred to an actually existing cause, while, if we do not lift the floorboards, the protases in the analysis are false and the hypotheticals refer to nothing actual at all. Similarly Pragmatic Phenomenalism may point to patterns of joist and floor data as the ground for our notion of unseen joists supporting the floor, but it must admit that this notion is a fiction and that when the floor only is observed there is nothing actual

to support it,[1] no actual joist data being conjoined with the actual floor data.

Even greater difficulties arise over the so-called 'vertical causation', the causation of sense-data themselves. They are due, or at least either their generation or selection is due, to a complex causal process involving light waves (or other stimulus), sense organs and nervous system. But this process is largely unobserved and difficult to express in terms of sense-data. Thus nerve impulses are not directly observable, though they can be reproduced on a cathode-ray tube; the rods and cones of the retina can only be seen in special circumstances and are normally inferred; but when seen it is only by a physiologist and not by the person who is using them. Hence the usual Phenomenalist paradox is heightened: the actual effect of sense experiences is caused not merely by possible sense-data but by possible sense-data obtainable only by some other person. If the parts of my eye whose activation causes me to have sense-data are a set of possible sense-data, they are a set of the physiologist's data, not mine; if the nerve impulses are a set of sense-data at all, they are data belonging to a cathode-ray-tube screen. The time-lag in perceiving intensifies the problem: if light starting out from a stellar eruption causes us to see the eruption for the first time ten years later, then apparently a set of possible sense-data emanating from a set of possible, not yet actualized, data causes the eventual actualization of one of the second set. There seems to be absurdity however one tries to analyse it.

The same difficulties appear in Linguistic formulations. Causal statements about nerve impulses and retinal cells would seem to change into: 'If you sense sense-data, then (*a*) given sense-data of suitable experimental apparatus working correctly wave-like data would appear surrounded by cathode-ray-tube data, and (*b*) if a physiologist got the sense-data of dissecting your eye he would get rod-cell-like data.' These are perhaps allowable as inferences from the causal process, but they are incredible as analyses of it; for in place of a statement about actual events in *you* there is given a set of statements about possible occurrences in apparatus and possible experiences of physiologists. In other words the analysis is about something quite different.

To examine the Phenomenalist defence against these criticisms

[1] Or to cause it to fall, if gravitational force is analysed Phenomenalistically.

I shall take an example used in recent controversy, that of the deflection of a compass needle caused when it is brought near to a magnet concealed in someone's pocket. Price had argued that when the deflection is caused by the magnet the deflection data are actual but the magnet data are not, they are merely possible.[1] As it would be absurd to suppose with Factual Phenomenalism that an actual effect can be caused by something which is not actual, the causal characteristics of the magnet or any other material thing cannot be due to its family of sense-data, all of which may be merely possible, but must be due to something else, namely its physical occupant. Ayer replied that all one has to say is that the deflection data would not occur unless the magnet data were obtainable.[2] The facts can be adequately stated by a complex proposition of the form, '*p*, and if *p*, then, if *q*, then *r*', i.e. 'deflection data, and if deflection data, then, if inside-pocket data, then magnet data'. And for the validity of this proposition neither *q* nor *r* need be true, but only 'if *q* then *r*'; the actual occurrence of inside-pocket data and magnet data is not required. Thus a causal regularity has been stated Phenomenalistically, and we can see the meaning of the statement that an unobserved material object has causal characterictics. (The causal regularity at issue would be fully and more strictly expressed as 'if, if *s* then *p*, then if *q* then *r*, and if, if *q* then *r*, then if *s* then *p*'. The second part of this is the better for discussion as the cause is analysed first: 'if, if inside-pocket data then magnet data, then if approach data then deflection data'.)

However, as Mr W. F. R. Hardie pointed out,[3] Ayer has only explained what unobserved causal operation amounts to on Phenomenalist analysis; he has not really met the point that he makes actual effects depend on possible causes. It is still the case that the magnet data are only possible or obtainable, not actual; and so Ayer is accepting the paradox but does not think it absurd. This objection can be put in another way. A causal relation may be reduced to a regularity between events—unobserved C causes E = whenever unobserved C occurs, E occurs, C and E being actual events. But this cannot be further reduced to regularity between the sense-data of C and the sense-data of E, for the sense-data of C are merely possible, not actual, and the causal

[1] *Perception*, p. 290.

[2] *FEK*, p. 228.

[3] *Proc. Aristot. Soc.*, 1945–6, pp. 135 ff.

regularity must be asserted of events of the same type, viz. actual ones. The Phenomenalist analysis also fails for observed causes, in that the operation of the cause does not depend on its being observed, whereas the actuality of the sense-data does.

Ayer's answer is that this objection rests on an ambiguity in 'event'.[1] There are two levels of events: the physical level of events in physical space and time, and the sense-datum level of events which are in *sensory* space and time if located at all. The absurdity alleged only arises if one uses the physical-level terminology of causes and events to refer to sense-data. At the physical level actual events have actual causes, but then the magnet is actual, though unobserved, and no difficulty arises. But what is actual at the physical level may be analysed into a set of possibilities at the sense-datum level, and even categorical sense-datum statements do not describe actual events in the physical-level sense of 'actual'. Moreover causal relations and causal regularities and laws only hold at the physical level; it is not sense to talk of sense-data causing each other or of physical events causing sense-data. However, there are correlations between sense-data and possible sense-data expressed by complex hypotheticals of the type 'If, if p then q, then, if r then s'; and 'it is only because they [i.e. sense-data] can be so correlated that we have any reason to believe in the existence of causal connections between physical events'. But as these correlations of sense-data are not themselves causal and are not relations of dependence, Phenomenalism is not committed to the absurdity of making actual events or actual sense-data depend on mere possibilities.

This is very ingenious, but it is difficult to see why the correlations of sense-data are not causal when the regularities of events are. First, sense-data are usually alleged to be events by those who claim they exist or occur; and on the adverbial analysis which Ayer seems to accept sense-data, or rather sense-contents, are not separate or distinct from the sensing of them, so that sensing a given sense-content is one event. If then there are regularities between these sensory events, why should they not be causal like regularities between other events? Secondly, although the sense-datum correlation is expressed by a hypothetical statement, it seems to be a regularity, and the 'if' in its expression could perfectly well be replaced by 'whenever'. Ayer says: 'For the basis

[1] *Philosophical Essays*, pp. 146 ff.

of the correlation is always a hypothetical proposition to the effect that a sense-datum of a certain sort occurs if in certain conditions a sense-datum of a certain other sort occurs, and it is not necessary for the truth of such a proposition either that the protasis or that the apodosis should be actually fulfilled.' But this seems to be saying that one sense-datum occurs whenever another occurs, the 'if' being like that in 'iron expands if heated'; and the truth of 'A occurs whenever B occurs' likewise does not depend on the truth of 'A is occurring' or 'B is occurring'. We may illustrate this from Ayer's formula, using the letters used in the magnet example: for 'If, if *s* then *p*, then, if *q* then *r*' we can say 'Whenever, if *s* then *p*, then also, if *q* then *r*', and similarly we can also assert 'Whenever, if *q* then *r*, then also, if *s* then *p*.' Indeed in the magnet case it would seem one can replace all the 'if's: 'Whenever, when *q* then *r*, then also, when *s* then *p*', i.e. 'Whenever, when inside-pocket data then magnet data, then also, when approach data, then deflection data'. Conversely any causal regularity can be expressed hypothetically: C causes E = whenever C, E = if C, E.

It might be objected that although some 'if's may be replaced by 'whenever', the phenomenalist 'if' cannot, since it is purely hypothetical and expresses no regularity, e.g. 'if you go to the garage, you will get car-like sense-data' does not mean 'whenever you go . . .'. But this is because a simple factual statement, and not a causal one, is being analysed (though going to the garage does enable you to see the car). In the magnet example at most the 'if *q* then *r*' is of that simple kind (presumably we do not want to say that 'if inside-pocket data then magnet data' is the basis of a causal regularity—the pocket does not cause the magnet—though there is nothing in Ayer's analysis to single it out); the other 'if's certainly express regularities, for the proposition is being offered as the analysis of a causal (regularity) statement, and it is only because sense-data of deflection have been and can be regularly obtained when approach, pocket and magnet data are obtained or obtainable, and because of similar regularities of data from compasses and magnets, that the causal statement can be made on the physical level. Indeed the words 'correlation of sense-data' support this; a correlation must be a regularity or concomitant variation, not a mere single possibility.

The regular conjunction of physical events, therefore, is asserted as the result of the regular conjunction of sense-data (or

sense-contents or sensings); but on the Regularity Theory of causation there is no ground for denying that either regularity is causal, for causal relation and regular conjunction *mean* the same. C causes E = whenever C, E; and *vice versa.* (The occasions when 'Whenever C,E' does not amount to 'C causes E', e.g. day follows night, are normally alleged against the Regularity Theory, and if valid remove this essential support to Phenomenalism, but they are of doubtful force, being parts or effects of a wider regularity, e.g. the solar system.) The paradox therefore still remains, for when the magnet and inside-pocket data are not obtained, are not actual, the regularity holds between terms or sets of terms, one of which is actual and the other not actual. An actual effect is thus made to depend on a cause which is merely possible and not actual.

Had Ayer's general defence been tenable it would have gone a good way towards meeting the difficulties of vertical causation. Though denying that sense-data are caused, he would have to admit that sensings (and so derivatively sense-contents) are caused. It would then appear that the correlations of sense-data (or sense-contents) which entitle us to assert a causal relationship between events in X's nervous system and his sensings, are correlations between X's sense-data and the physiologist's. It would still seem odd that such correlations between different persons' data should occur at all, if they are not due to facts about sense organs, instruments, etc., but are themselves the basic facts; but the major paradox returns only if it is realized that the correlations are regularities. They must then be causal relations, with the absurdity that the physiologist's data cause X's. This is bad enough if the physiologist's data occur, but it is intensified by the general difficulty if the physiologist's data remain only possible.

One final point about the objection as a whole: the Phenomenalists must not be allowed to evade it by treating their possibilities as actual entities or events, as Factual Phenomenalism seems tempted to do. Linguistically this evasion might be attempted by saying that the needle deflection is due to something actual, for it is an actual fact that the magnet data are obtainable. This would be playing with words, for 'the actual fact that' is not a causal agent, indeed it is not an actual existent at all. The words 'the actual fact that' are merely a linguistic device for expressing or emphasizing what follows the 'that', and do not stand for any

referent like 'the house that stands there'. To admit the actual fact that event X is only possible is not to admit that X is actual or that there is an actual event besides or incorporating X; it is merely to agree that X is indeed possible.

8. CATEGORICAL AND HYPOTHETICAL STATEMENTS

Our final objection to Phenomenalism is like the causal one in that it accuses the theory of insufficient distinction between the actual and the merely possible, but it does so much more generally. It may be stated in two ways, one emphasizing logical and linguistic considerations, and the other factual ones.

In the first it is claimed that hypothetical and categorical statements are two distinct and logically irreducible types of statement, and that Phenomenalists have blurred this essential difference by trying to reduce the one to sets of the other.[1] Categorical statements assert or entail actual existence in a way in which hypothetical ones do not. If I say that there is a table in the next room or that the clock in the dining-room is fast, I am drawing attention to some actually existing state of affairs and am committing myself to an assertion about some actual entity at a given place and time. In the first of these statements I am doing this directly, in a way logically akin to pointing but with a wider range; the second is less direct but entails the continuing existence of an entity—it would not be sense to say 'The clock is fast but does not exist'. Hence any proffered analysis of such statements which does not equally commit one, directly or indirectly, to the assertion of existence, will thereby be inadequate; it is this very inadequacy that is responsible for the common-sense feeling that something vital is missing from the Phenomenalist analyses. For the hypothetical statements offered do not commit one in this way, indeed their main function seems to be to avoid this assertion or implication of existence.

Ayer has tried to meet this criticism.[2] He says that though the hypothetical statements about sense-data are not being used to assert that sense-data are occurring, it does not follow that they are not being used to assert that physical objects exist. In fact this is what they do serve to assert, if Phenomenalism is correct.

[1] See Sir Isaiah Berlin, *Mind*, 1950, pp. 289 ff.

[2] *Problem of Knowledge*, p. 135 (Macmillan), p. 121 (Penguin).

Further, there is no more difficulty in principle in replacing categorical statements about chairs by hypothetical statements about sense-data than there is in replacing categorical statements about electrons or unconscious feelings by hypothetical ones about experimental results or behaviour.

The first part of this does not meet the essential point, namely that the normal function of hypothetical statements is so different from that of categorical ones that the proffered analysis fails in itself to convey the committal about existence contained in the original. If hypothetical statements are ever used in an attempt to assert the existence of physical objects, that is a misuse, a distortion of function, and can only succeed if the hearer makes causal inferences as to why the hypothetical statement is true or is made. One may infer that there is a car in the garage from 'if you go to the garage you will get car-like sense-data', but that is because it is the most likely explanation of your getting the data; it is not in any strict sense part of the meaning of, or entailed by, the hypothetical. Ayer's further contention neglects the essential point that electrons and unconscious feelings, unlike furniture, are admitted unobservables; and it seems to beg the question by assuming the validity of the Phenomenalist account of them.

The difference between categorical and hypothetical statements is most marked in 'unfulfilled conditionals' or 'counterfactuals'. A full Phenomenalist analysis should strictly require these for sense-data obtainable from unoccupied viewpoints—'If there were an observer at the window he would get such and such sense-data'—and they are certainly necessary for statements about the past. Compare 'There were dinosaurs in the palaeozoic era' with 'If an observer had been present in the palaeozoic era he would have had dinosaur-like sense-data'; there was no observer, for there were no men then, so a categorical statement of existence is replaced by a statement about what might have happened but did not. 'Given sense-data of palaeozoic times . . .' is equally unsatisfactory, for it is generally assumed that sense-data are human; the sense organs and brains of primitive animals differ so much from ours that we can hardly offer analyses about their sense-data.

The objection may be stated factually, with emphasis on the references not the functions of the sentences involved. We can say that the original material-object statements refer to an actual

existent, a continuing entity; but the 'if' sentences merely state a simple possibility, so we are offered something different from the original, an inferior substitute in fact. This is similar to the old charge that Phenomenalism absurdly makes the actual depend on the possible. Here the absurdity is in offering, as equivalent to the actual, something which depends on it, namely a possibility or a set of possibilities. This can be shown by posing a dilemma. A possibility is either due to and dependent on actual standing conditions, or it is not. If it is, and this is what we normally think, then the Phenomenalist analysis is inadequate in that it omits the actual standing conditions on which the possible sense experiences depend; indeed the original material object statement is usually a statement of the most important of these conditions. Thus the fact that if garage-like sense-data occur then car-like ones do is due to a continuing actual state of affairs, namely that there is a car in the garage. In other words, so far from being equivalent to the analysandum the sets of hypotheticals are inferences from it, and inductive inferences at that. The other horn of the dilemma is equally uncomfortable. If possibilities are not dependent on actual standing conditions, which is itself difficult to accept, then an analysis solely in terms of them means supposing that nothing actual exists at all. Thus 'If G data then C data', but what if the protasis is false or unfulfilled? If no G data occur, then neither presumably do C data, at least there is no warrant for thinking that they do. No data then occur, and in place of a statement about an actual thing existing unobserved we are given a set of statements which amount to admitting that nothing may exist at all. The ontological claim behind Linguistic Phenomenalism seems to be that only sense experiences are real; so when an object is not being observed, none of 'its' sense-data occur, neither the object nor anything belonging to it exists. If this is not plain absurdity, it is at least so far from the common-sense belief that the car continues to exist in the garage when unobserved that it requires considerably more justification than is forthcoming.

Though it is unlikely that Phenomenalist analyses are of the general 'if . . . then' type (whenever G data occur, C data occur) a possible defence might be raised on it. Such an analysis would mean that instead of a continuing actuality we are being offered a regularity rather like a dispositional property, and this might be

defended by pointing out how many seemingly categorical statements are really dispositional statements which have to be analysed by 'if' or 'whenever' sentences. 'Rubber is elastic' means that if (whenever) rubber is pressed, pulled or distorted it returns to its original shape as soon as the deforming force is removed. 'John is irritable' means that John shows signs of anger and annoyance if (whenever) he is provoked by circumstances which would not trouble most people. Hence a statement may not be logically categorical even if it is stated in an indicative sentence and is apparently categorical. Phenomenalists thus claim that material object statements are only apparently, and not really, categorical; the only truly categorical ones are sense-datum statements.

We may object to this defence that the alleged analogies are irrelevant. Not only do these dispositional analyses apply to but a few predicates (others like 'square' and 'old' remain stubbornly categorical), but they do not apply at all to existential statements, which are the main ones at issue. It is 'There is a car in the garage' which is being discussed, not 'The car is lively'; but even if the latter is to be analysed dispositionally it still implies that the car exists. To the general thesis that a categorical statement can be wholly analysed into regularities or dispositions the answer is that regular manifestations or dispositions are not fundamental; they are due to the actual persistent properties of the objects concerned. That the sun rises every day is due to the continuing motion of the earth; that rubber is elastic is due to the characteristic shapes and inter-relations of its molecules, indeed an important part of the chemical problem of making synthetic fibres and materials lies in reproducing the molecular structure responsible for elasticity; similarly irritability is due to the underlying state of the nervous system, the person's underlying state being such that he reacts unduly to certain stimuli. This last point can be seen from the way a person's dispositions can be affected by changes in the brain and nervous system, e.g. the operation of pre-frontal leucotomy or the aftermath of diseases such as *encephalitis lethargica*. If the disposition is fundamental and not dependent on the nervous system it is difficult to see how these effects can occur. Thus there is no reason to suppose that regularities or dispositional recurrences like 'Whenever G data then C data' are fundamental and are a plausible equivalent to the analysandum; on the contrary they seem to be simple inferences from it.

Phenomenalism must therefore be rejected on three main grounds, apart from the general difficulties of any sense-datum theory and the special difficulties of its Factual and early Linguistic forms. First, its analyses cannot be purely in terms of sense-data: some reference to observers, landmarks or standing conditions seems necessary for precision and to ensure that the analysis is not blatantly false when the analysandum is true. Secondly, it cannot do justice to the essential characteristics of material objects, their publicity, persistence and causal characteristics. Above all, the suggested analysis of unobserved causes, even granted the Regularity Theory of causation, makes actual effects depend on causes whose existence is only possible. Thirdly, the analyses differ in function and reference from the original categorical material-object statements. These objections apply even if Phenomenalism is excused its original task of giving a complete and equivalent analysis, i.e. even if it is allowed merely to indicate in a general way the meaning of its analysanda, or to explain how, though no material objects exist, material-object concepts are useful for co-ordinating and identifying sense-datum patterns. An analysis which is impure, which differs as to truth, function and reference from its analysandum, which omits essential characteristics of it, and which involves absurdities, can hardly be said to give the general meaning of its analysandum or to give a satisfactory explanation of its successful use. The discussion has shown in detail the large extent to which material-object statements refer to something more than patterns of sense-data. We must therefore reject the characteristic claim of Phenomenalism that material objects can in some sense be reduced to or analysed wholly in terms of sense-data, while we may safely ignore any innocuous and watered-down version of the theory which fails to make that claim.

Phenomenalism was the last main stand of the Sense-datum Theory, and we shall now have to turn to quite different treatments of the problems of perception. A transition can conveniently be made to the contribution of modern Linguistic or Analytical Philosophy, since the movement which substituted Linguistic for Factual Phenomenalism can be studied apart from the Sense-datum Theory and has in fact developed independent methods of solving or disposing of perceptual problems.

CHAPTER FIVE

LINGUISTIC METHODS

I. THE ALTERNATIVE LANGUAGE THESIS

Many philosophers would nowadays admit sympathy with Wittgenstein's dictum that 'All philosophy is "Critique of Language" ', and agree that the proper task (or at least an important task) of the philosopher is the analysis of expressions to translate them into less misleading forms or to clear up puzzles engendered by their misunderstanding or misuse. It is notoriously difficult, however, to give any statement of this new approach which would be accepted by all concerned, for its exponents differ among themselves and are still developing their views as the result of mutual criticism, criticism and developments which are not always published. Moreover one can now distinguish two opposing trends. One view, more popular now in the United States of America than in Britain, is that ordinary language, or even the language of traditional philosophical discussion, is so irremediably confused that to use it in science or philosophy must inevitably lead to puzzlement or absurdity. One must therefore invent a new perfect language, which will reproduce the structure of the facts of the world better than do natural ones, and which will enable one to formulate and discuss the facts without ambiguity or error. The other view is that the fault lies not in ordinary or academic language but in our failure to understand its logic. Philosophers have created confusion or built up unsound metaphysical edifices because they have used words incorrectly, have been misled by ordinary expressions, or have failed to appreciate the manifold functions of language. The remedy therefore is not to be found in artificial languages, which are chimerical and would present all the old puzzles when we tried to translate into them; rather we must examine our own language more carefully, and when we fully understand its logic and use we shall find the traditional problems dissolve away.

Even these opposing views are held in varying degrees. The former has its extremists, who want an entirely new language like a mathematical calculus, and its moderates, who insist on a basic

object language like headline English; while yet others find the introduction of a few special terms and conventions into ordinary discourse enough to create an improved alternative language. Again some will claim that these changes get one nearer to reality, to the structure of things, while others will modestly claim only that they are illuminating. There are similar divergencies in the second main view. Some seem to appeal to ordinary usage, or at least to the Oxford English Dictionary, as an ultimate standard by which the statements of their opponents can be dismissed as incorrect and absurd. Others claim that their concern is not with usage but with the use or logic of language, notions which, though far from clear, seem to lead away from language to the concepts expressed in it; indeed it is suggested that if we get the logical geography of these concepts correct we shall then be able to free ourselves from the maze of tangled thickets into which we have been led astray.

It is not our task here to attempt a detailed survey or assessment of these modern developments, but we must consider whether the new methods have enabled their exponents to solve any of the problems outlined in the first chapter.[1] Linguistic Phenomenalism should logically have come under this head as an instance of the first kind of approach, but it is too complex and too Protean a theory to treat as a mere example, and the linguistic thesis behind it, the Alternative Language Thesis, can be considered and maintained independently. As to the second main method, I shall examine Ryle's treatment of perception, particularly that in his latest book, *Dilemmas*; and I shall return to the problem of certainty which has been under persistent linguistic attack for many years.

The Alternative Language Thesis, developed by Ayer and G. A. Paul,[2] is that the various philosophies of perception are not, as their upholders think, theories to explain or discover facts and to solve problems, but are simply alternative languages to express better the facts on which we are all agreed. Thus the Sense-datum Theory did not really discover new entities or any incorrigible immediate awareness; it only produced a 'sense-datum language' which is

[1] I regret that R. M. Chisholm's *Perceiving* appeared too late to be discussed here. I hope to review it shortly in the *Philosophical Quarterly*.

[2] Ayer, *FEK*, Ch. I, esp. pp. 46 ff. G. A. Paul, 'Is there a Problem about Sense-data?' *Proc. Aristot. Soc.*, Supp. Vol. XV, 1936 (reprinted in *Logic and Language*, ed. Flew, Series I).

an alternative to the everyday 'material object language' and is an improved way of expressing the accepted facts of perception.

Two remarks are necessary before we examine the reasons for this view. The first is that its chief novelty consists in its reassessment of the status of a philosophy of perception; it wishes to assert that what was previously thought to be an explanatory theory is simply a mode of description. In my discussion I wish to resist this reassessment and to claim that the Sense-datum Theory is really a theory, an attempt to explain accepted facts by postulating or indicating facts and relationships on which we are not all agreed. The second is that though the thesis is stated generally of any philosophy of perception it would not perhaps be fair to press this. It was developed to deal with the Sense-datum Theory, and I shall therefore examine it in that context.

The first reason given for demoting theories of perception to languages is that no experiment or observation can be deduced from them which would enable us to verify them in the way that scientific theories are verified. As Ayer says, 'Each of them will cover any known fact; but none of them . . . enables us to make any inference at all from the known to the unknown.'[1] But this would mean only that they are not typical scientific theories, and would not make them languages; between scientific theories, which normally explain and predict, and languages, which state or describe, there is a third category, theories in the general sense which seek to systematize and explain what we know and to discover significant relations not previously recognized within it. To this philosophical theories belong; and I do not see why the same standards of predictive fruitfulness should be demanded of them as of scientific ones, which normally have a subject-matter admitting a mathematical treatment, thus making precise deduction and testing easier. Anyhow, as the offering of criteria of simplicity shows, even in science there is always the possibility that two rival hypotheses explain all the known facts, but nothing can be deduced from them to enable one to choose between them; this happened for a time in the case of the Ptolemaic and Copernican hypotheses.

This point about experimental confirmation is developed slightly differently by Paul. He maintains that no experiment will enable us to find out if there are such things as sense-data, since

[1] *FEK*, p. 53.

we do not know what it would be like to see a material object and not have sense-data; on the Sense-datum Philosophy it is logically impossible that we should see the former and not have the latter. This logical impossibility depends on the way 'sense-datum' is defined, and shows that the so-called theory is only a language or terminology and is asserting no new fact. Two comments may be made on this. First, logical necessity or impossibility, even if dependent on definitions, does not mean that the definitions are part of a language only, and not of a theory. Thus that space is Euclidean or non-Euclidean are two rival theories, but once one is accepted various conclusions follow with logical necessity; nor does Einstein's redefinition of simultaneity, with its logical consequences, make his Relativity Theory simply a new language. Secondly the argument that sense-data cannot be discovered by experiment depends on the identity of seeing material things and sensing sense-data, not just on the continual presence of the latter in the former. But sense-data are said to occur in hallucinations, and so we can conceive what it is like to have sense-data and not perceive a material thing. And we must remember that on the Sense-datum Theory to perceive, or even to be perceptually conscious, is more than to sense sense-data, so removing the extraneous features by perceptual reduction[1] might reveal sense-data.

The second argument to show that the Sense-datum Theory is merely a language is that questions about sense-data are settled linguistically not factually. Thus Paul claims (p. 70) that the question whether a sense-datum is identical with the surface of a material thing is to be

> 'settled by examining not an object but our use of the words "sense-datum" and "surface"; if we find some sentence which says something true about the sense-datum such that if the sentence which results from replacing the word "sense-datum" in that sentence by the word "surface" is either false or meaningless, that is what we shall call the sense-datum and the surface not being identical. Thus if *ex hypothesi* the corresponding surface is really round and the sense-datum I see of it is elliptical, to say "the sense-datum is round" is either false or nonsense.'

Let us take this thesis and apply it to what would normally be held to be a factual question, e.g. 'Is Dover the county town of

[1] See p. 250 below.

Kent?' We then take a true sentence about county towns, 'The County Council of Kent meets in the county town of Kent', substitute 'Dover' for 'county town of Kent', and get a false statement; thus the question is settled by examining our use of words. It would seem then that Paul's prescription makes almost any question linguistic. The reason for this absurdity is the phrase 'says something true'; as soon as you bring in truth and falsity you make it a factual not a linguistic matter, provided the 'something' is not part of the definition of the subject. In the case of the shape of a given surface or sense-datum the 'something' is so far from linguistic that it has to be decided by looking.

There are some questions about sense-data which would be better examples for Paul's thesis because they do not depend on matters of fact like 'Did X get a round or an elliptical sense-datum?' An example would be: Do sense-data have qualities other than they appear to have? But though these may be decided *a priori* they are not therefore necessarily linguistic. In developing and formulating any theory which involves new concepts or new types of explanation, there will have to be decisions made as to what the new concept will include or exclude and what distinctions shall be drawn and where; but that does not mean that the result is language not theory. These decisions are really part of the process of forming and making precise the theory, and will normally be influenced by factual considerations such as the purpose of the theory or the way a given formulation fits the facts. Thus some questions about the qualities of sense-data amount to this: does the postulation of an entity with property A fit the facts better than that of one with property B? Other issues might be settled by pointing out that the argument from illusion is undermined if sense-data appear other than what they are; but this is a way of saying that the ascription of the property is not consistent with the way the theory attempts to explain illusions. These are admittedly not straightforward questions of empirical fact, but they are not linguistic ones either.

An important principle of the Alternative Language Thesis is that there is no disagreement among philosophers about the facts of perception. Only if this is accepted does it become plausible to suppose that the differences between them solely concern the language in which the facts should be stated. The worth of this principle can best be appreciated by considering the way in which

it is introduced and illustrated. Ayer takes the case of a penny which appears round when seen from above, elliptical when seen from an angle, and round again when you return to the original viewpoint. He considers how we, who think that the penny has retained a constant shape, could answer someone who claimed that the changes in its appearance are due to its having changed its shape as the observer moved:

'So long as we persist in regarding the issue as one concerning a matter of fact it is impossible for us to refute him . . . because, as far as the facts are concerned, there is really no dispute between us. It has been assumed that he agrees with us about the nature of sensible appearances; and no evidence of any other kind is or can be available. In what then does our disagreement consist? It consists in the fact that he refuses to describe the phenomena in the way in which we describe them. Where we say that the real shape of the coin is unchanging, he prefers to say that its shape is really undergoing some cyclical process of change . . . But the facts to which these expressions are intended to refer are in either case the same' (*FEK*, p. 18).

It seems clear from this and other passages that the Thesis can only be maintained as the result of a peculiar use of the words 'fact' and 'description'. Ordinarily we should say that to assert that the penny changed in shape as the observer moved about was a supposition or statement of fact, and that anyone who maintained this would be disagreeing about the facts of the case with one who thought that the shape of the penny remained unchanged. We might perhaps say that the two persons were describing the situation differently, but that would be so to use the words 'describe differently' as to imply difference about the facts. If there is agreement about the facts then differences in language must be much less marked, e.g. A might say that 'the penny remained unchanged', B that 'its shape was unaltered' and C that it 'remained constantly round'. These are equivalent, though different, descriptions based on agreement about the facts, while 'the penny changed shape as the observer moved' is not. It has quite different implications, e.g. to assert a concomitant variation like that would suggest a causal relation between movement of the observer and changes in the penny's shape, and it is the contradictory of A's statement of the facts. It is absurd to maintain that two contradictory statements are merely different descriptions and

not expressions of disagreement about the facts. Ayer seems to think that the only facts in the case are 'the nature of the sensible appearances', i.e. that the penny looks elliptical from point Z and round from point Y. To suppose that these are the only facts is itself to disagree with common sense about the facts of the case, since one would normally hold that whether the penny's shape remained constant or not was just as much a question of fact as how it looked. However, if the sensible appearances are the only facts, then any statement about the penny's constant shape, as opposed to how it looks, cannot be a description of them; it must be an inference from the facts or an attempt to explain them.

We may conclude then that Ayer can only maintain his thesis by an unjustified and eccentric use of the words 'fact' and 'description'. He has provided a signal example of the mistake the second type of Linguistic Philosopher is always imputing to metaphysicians, that of using ordinary words in a peculiar way and then claiming to have made an important discovery—one that would only be important if the words were being used normally. We may underline our criticism by mentioning some of the ways the Sense-datum Philosophers do not agree about the facts with others. They each make most of the following suppositions: that there are unsuspected existents which are private objects of awareness in perception differing from physical objects; that all perceiving, even when one cannot see or hear clearly, involves incorrigible knowledge of some existent; that colours, sounds, smells, etc., are private and wholly without causal properties; that seeing a colour is an adverbial experience in which no object can be distinguished from the act; and finally that having an hallucination does not differ in mode and object of consciousness from perceiving.

2. THE VALUE OF A SENSE-DATUM LANGUAGE

There are signs that Ayer has modified his claims, at least he has twice recently suggested treating our beliefs about physical objects as a *theory* to explain the course of our sense experiences; but as he still speaks of 'sensory language'[1] this should not perhaps be taken seriously. At any rate the Alternative Language Thesis still has many supporters'[2] and is attractive as a halfway house for

[1] In one of the passages (*Philosophical Essays*, p. 165).
[2] e.g. R. Wollheim in *Proc. Aristot. Soc.*, Supp. Vol. XXVIII, 1954.

those who wish to preserve the sense-datum approach without postulating new entities. We shall therefore consider what advantage there would be in introducing a sense-datum terminology.

We may pass quickly over two earlier suggestions which were not generally adopted. One was that a sense-datum language is necessary for the proper account of illusions and hallucinations, but attention to normal usage has shown that ordinary language can adequately describe them—it would be strange if it could not. The other is that the sense-datum language is less misleading, because it corresponds more closely in structure to the only real facts of the case, namely the sequences of sense experiences. If the claim is put this way it clearly destroys the thesis, for to hold that the real facts of the case are these is to disagree as to the facts with common sense and to propound a theory of reality.

A similar claim has been made in a more sophisticated way by Ayer:[1] the sense-datum language is 'logically prior', 'for whereas in every case in which it is possible to apply the physical-object language it is also possible, at least in principle, to apply the sense-datum language, one can conceive of an order of experience to which the sense-datum language would have application but the physical-object language would not'. But merely to apply the sense-datum language is not much use. It must be applied successfully, i.e. convey what is conveyed by the material object language, and this does not seem possible, as we saw in considering Phenomenalism; it is certainly not possible in practice, and using a language is a practical matter. Secondly, the only situations in which the sole use of the sense-datum language is allegedly conceivable are fantastic ones, e.g. that our data should have 'a eurhythmic rather than a thing-like order, arranging themselves in . . . tunes'.[2] Such fantasies seem quite irrelevant; if the world had been like that ordinary language would no doubt have developed differently.

A more plausible claim for the sense-datum language is that it is conveniently non-committal as it 'enables us to refer to the contents of our experiences independently of the material things that they are intended to present'.[3] But we can make material object language non-committal by expressions like 'I *seemed to* see a monkey', '*There appeared to be* two candles', perhaps adding that you are

[1] *Philosophical Essays*, p. 104.

[2] Price in *Mind*, 1941, p. 291, quoted by Ayer.

[3] Ayer, *FEK*, p. 26.

using 'seem to see' and 'appear' neutrally. In making phenomenological descriptions we may quite normally talk of coloured shapes, patches of light and shade, sounds of such and such pitch and tone, etc., i.e. in ordinary language with the recognized convention that it is neutral in such contexts and does not imply the existence or non-existence of material objects. The Sense-datum Theorists must not be allowed to appropriate such expressions; they could only claim them as a special sense-datum or sensory language if their use implied the sense-datum account of the nature of colours, shapes and sounds, which would mean they were part of a theory not a language. Further, the ordinary language of shapes and sounds is also neutral in not implying that the shapes and sounds are private existents or 'adverbial'; and this is important, for the sense-datum language is not really so non-committal. Sense-data have for so long been claimed as private existents, as immediate objects of awareness, that any sense-datum language is now tainted by theory. A slightly different version of the claim is to say that the sense-datum language is so much neater than ordinary language that it is indispensable—its rivals are so clumsy as to divert attention from the task in hand.[1] But there is nothing fatally distracting about ordinary descriptions of coloured shapes or highpitched sounds, or about 'I seemed to see so and so'; and neatness is a very dangerous topic for Sense-datum Philosophers to raise. The Phenomenalists' analyses are intolerably clumsy, or would be if fully developed, while many sense-data have to be described in periphrases about material objects—'the data one gets from so and so'.

It is also claimed that the sense-datum language avoids the ambiguities in ordinary words like 'perceive' or 'see', but there is not much in this. The main ambiguity in 'perceive', for example, is that some philosophers use it in the common-sense way to imply the actual existence of what is perceived, while others do not. But philosophical exactness can be obtained by Price's distinction between perceptual consciousness and presence to the senses, a distinction which has nothing to do with sense-datum language.

Finally it is said that a sense-datum or sensation language is needed by scientists and psychologists for discussing the causation of perception. But, first, the 'sensations' referred to by psychologists

[1] See on these points Price in *Proc. Aristot. Soc.*, Supp. Vol. XXVI, 1952, esp. p. 233.

and physiologists are by no means the same as sense-data, and so do not support a sense-datum language. They are defined as experiences caused by the action of objects on the sense organs, and tend to be allotted the supposed qualities of the stimulus rather than of the 'look' of the object, where, as in object constancy, there seems to be a difference; in such cases their postulation is clearly a matter of theory not of language. Secondly, that they need a sensation language at all is denied by Gestalt Psychologists; and thirdly, the needs of scientists and psychologists are an odd recommendation for a philosophical language in view of the opprobrium usually heaped on them and their causal theories by epistemologists.

Against these dubious advantages we can set the one great weakness of any sense-datum language, however elaborate. It can never be equivalent to material object language, because a material object is more than a set of sense-data or experiences and perceiving is more than sensing. In discussing Phenomenalism we dwelt on the first of these reasons; the second will be discussed fully in Chapter IX, and for the moment we may say simply that almost all philosophers have recognized that perceiving is more than just having purely sensory experiences and involves some non-sensory activity. Opinions have admittedly differed about what this is—interpretation, synthesis, taking for granted, or skill have been suggested—but if it does occur statements about sensings, even a group of them, cannot do justice to it and so cannot be equivalent to a statement about observing.

We may conclude from these two sections that there is no valid reason for supposing either that the sense-datum philosophy is not a theory but an alternative language for describing agreed facts, or that if it were only a language there would be any advantage in using it. But even if the most plausible claim on behalf of the language were accepted, namely that it is a non-committal way of describing the facts, particularly useful for phenomenological description, it would be of little assistance to us. The old Sense-datum Theory did try to provide a solution to many of the perplexities we outlined in the first chapter; but a mere language offers none. Phenomenological description may help artists but does not solve philosophical problems; it may be delightfully safe to describe an experience without committing oneself about whether it is an hallucination or not, but it is no use to anyone puzzled about the

nature of hallucination and about how and why it differs from normal perception. And preoccupation with sensory language seems a futile waste of time to anyone who appreciates the formidable difficulties involved in the interpretation of the scientific evidence and in the elucidation of the non-sensory elements in perception.

3. PARADIGM ARGUMENTS AND OTHER TECHNIQUES

The second type of linguistic philosophy does at least claim to dispose of philosophical perplexity and to do more than describe agreed facts in non-committal language, but its supporters are reluctant to state the general principles of their view. There is, however, one thesis that has been put forward as fundamental to their technique, namely the 'Argument from Standard Examples'[1] or 'Argument of the Paradigm Case',[2] which I shall refer to as the Paradigm Argument.

It may be put as follows: if the meaning of a word 'X' is or can be taught by reference to standard or paradigm cases, then no argument can show, and it would be improper and absurd to assert, either (*a*) that there are no cases of X or (*b*) that any of the standard or paradigm cases by which the meaning of the word is taught is not a case of X. By using the notion of ostensive definition one can say more briefly that if a word is ostensively defined then examples of it, especially those used in the definition, must exist. Now we can understand confidence in this principle for it would indeed be absurd to deny that if examples are used to define something they must exist, but even the most obvious truism may miss the point, and so we must consider a few examples drawn from perception. Thus on the argument the following would be absurd: 'The plank has no solidity of substance. To step on it is like stepping on a swarm of flies'; 'No absolutely level and smooth surface exists for the surfaces of "the most accurate cube in the world" are "covered with tiny hills and valleys, the tops of the hills being about two millionths of an inch above the bottoms of the valleys," '[3] 'blood is not really red, for in a microscope we see it consists of yellowish particles in a straw-coloured fluid'. They are absurd, because

[1] J. O. Urmson, 'Some Questions Concerning Validity', *Revue Internationale de Philosophie*, XXV, 1953, reprinted in *Essays in Conceptual Analysis*, ed. A. G. N. Flew).

[2] A. G. N. Flew in *Philosophical Quarterly*, 1955, pp. 35–6.

[3] Cf. *Discovery*, February 1956.

planks are the sort of thing we point to in defining solidity, while we can only learn the meanings of 'smooth' and 'level' by observing smooth and level surfaces, and blood might be used for ostensively defining 'red'.

The first of these examples is taken from Eddington,[1] but others have less picturesquely tried to make the same point that objects are not really solid because their component atoms consist largely of empty space. It is historically interesting because Miss Stebbing's consequent attack on Eddington is one of the earliest cases of the use of the Paradigm Argument,[2] and although she was not really an advocate of this type of linguistic analysis her book has been duly honoured by Urmson and Ryle. W. F. R. Hardie has criticized the Paradigm Argument, and Miss Stebbing's use of it, on the following grounds.[3] Paradoxes like 'planks are not really solid', though perhaps over-dramatic, are not nonsense if they are intended (*a*) to convey some theory, whether it is a scientific one about the nature or causes of things or a new philosophical analysis, or (*b*) to correct the false theories presupposed by the ordinary use of the words in question. Thus the statement about the plank is legitimate, for in calling a thing solid we suppose it to be solid matter through and through and to have no empty space within it; the paradox denies this by implying that the matter of the atoms of the plank is concentrated in the nuclens and electrons, the rest of its volume being empty space. This may well be false or be a misleading expression of the facts, but to refute the paradox one would have to show this. Similarly the examples about blood and smooth surfaces are merely challenging ways of saying that scientific instruments reveal that, to be really precise, these things do not possess the qualities we attribute to them, even though they may approximate to them and the deviations can be ignored for practical purposes. And the plain man would accept this if put to him; he would agree the surface was not really level and smooth if it contained microscopic ridges.

The paradox does not, however, seem wholly resolved, and the statements criticized are unsatisfactory, though for rather different reasons. Miss Stebbing is too acute a critic to rely on the Paradigm

[1] *Nature of the Physical World*, p. 342.

[2] L. S. Stebbing, *Philosophy and the Physicists*, pp. 48 ff. (Penguin edition, pp. 42 ff.).

[3] *Philosophical Quarterly*, 1955, pp. 98 ff.

Argument alone, and her other criticisms of Eddington's statement seem valid. Her main objection is to his 'linguistic mixture': 'Nothing but confusion can result if, in one and the same sentence, we mix up language used appropriately for the furniture of the earth and our daily dealings with it with language used for the purpose of philosophical and scientific discussion.' Eddington gives the impression that he is using 'solid' and similar words in their ordinary meaning and with their ordinary standards of accuracy, e.g. 'stepping on a swarm of flies', 'slip through', and the fact that the whole passage is meant to describe the ordinary event of entering a room. Popular scientific statements should make it clear, if only by the word 'really', that they are using ordinary words like 'smooth' or 'solid' in an extraordinarily precise and accurate sense.

Much the same may be said of the example of level surfaces. As long as it is made clear that one is adopting such standards of accuracy as a millionth of an inch, there is no absurdity in saying that no surface is really level; but if a writer were careless enough to suggest that ordinary standards were being applied and then claimed that nothing was level, the Paradigm Argument could be used against him. Whether it should be used, either here or against Eddington, is however more dubious. One might say that all the argument does is show that the statements are absurd, and that is obvious already; at the most it enables one to generalize and classify the absurdity, but it does not reveal the error that has led to it. A precise and technical account of symptoms such as absurdity is little use without diagnosis of the underlying disease; and here the disease is a very ancient fallacy over which the Linguistic Philosophers have no proprietary rights—namely that of Equivocation. The absurdity only arises if there is an equivocation between those uses of 'solid' or 'smooth' implying scientific accuracy and thoses implying ordinary standards. So far as the latter are concerned deviations of a millionth of an inch do not mean a thing is not level, nor does the atomic structure impair its solidity.

The example of the blood is similar in that the Paradigm Argument enables a more definite statement of the charge of absurdity than one's feeling 'there's something wrong here', yet is inadequate because it fails to show the cause of the absurdity. But the ancient fallacy involved here is a different one, the Fallacy of Division. This can be seen by expanding the argument for saying that blood is not

really red: 'if blood is really red then all the component parts of a drop of blood will be red; but the microscope shows that a component (the fluid in which the corpuscules are suspended) is not red but straw-coloured; therefore blood is not really red'. The major premiss of this formally valid argument contains a material fallacy in that it falsely assumes that what is true of the whole must be true of each component of the whole. To avoid this one would have to make it explicit that 'really red' was here being used to mean 'red in all its component parts however minute'; then one would lose the dramatic force which depends on the reader's being misled into thinking that the ordinary sense of the word was being used.

The Paradox Argument, however, is not the only device used by these philosophers. Quite common, but the weakest and most criticized,[1] is the Appeal to Correct Usage. The Paradigm Argument is perhaps a special case of this, but the appeal may be quite general and of the form, X is not Y because 'we do not say X is Y' or 'to say X is Y is a solecism' (or 'incorrect usage' or 'contrary to ordinary language'). There are obvious retorts like 'Who are *we*?' or 'This is Philosophy not Belles Lettres' but we shall discuss some examples later. Another method has already been illustrated, the objection to any mixture of levels of discourse likely to lead to equivocation. This may perhaps be generalized into a Principle of Appropriateness: the type of language used should be appropriate to the context, so that one should not use technical terms in non-technical surroundings, or wander from technical to non-technical uses, or demand standards of exactitude unsuited to the subject matter. (This last point may be extended to cover standards of proof as well as of precision.) This principle is rather a double-edged weapon, for it may be turned against Linguistic Philosophers in the accusation that they use ordinary inexact words in philosophical contexts. Another method is the Category Argument, the claim that opponents have mistaken the true logical category or type of some important concept. This and its presupposition of categories dates back to Aristotle, and one kind of category mistake is the traditional fault of hypostatization or reification. One may thus treat part of the doctrine of Ryle's *Concept of Mind* as the charge that mind has been wrongly regarded as a substance.

But most important are the arguments based on features of the

[1] See P. L. Heath's criticisms in *Philosophical Quarterly*, 1952, p. 1.

use of language which have previously been unnoticed or disregarded. These are: (i) The essential indefiniteness or 'open texture' of material object words, which means that they cannot be defined with absolute precision.[1] This was ignored by those Phenomenalists who tried to give exact and fully equivalent analyses of such words in terms of sense-data. (ii) The emotive uses of language, which have been greatly emphasized in recent ethics. An example of their recognition is in the denial of the view that good is a simple quality like yellow. (iii) The distinction of task and achievement words made by Ryle. (iv) The performative uses of language, which have been made the basis of new theories of knowledge and truth.[2] (v) The differentiating function of language, especially in the use of pairs of words like 'hot' and 'cold', 'certain' and 'uncertain'. Some philosophical theories have been criticized on the ground that they destroy such distinctions; if everything is said to be uncertain then the assertion becomes pointless, since the distinction that gives the words meaning has been destroyed.[3] This might be given separate status as the charge of Misplaced Universalization, and has also been used to try to show that not every experience can be hallucinatory or be a dream. (vi) Dispositional terms or concepts have been subjected to much emphasis and painstaking analysis, e.g. in Ryle's *Concept of Mind*, and their alleged range has been extended to include 'knowledge' and 'belief'.[4]

This list is by no means exhaustive, but it should be sufficient to show that Paradigm Arguments or Appeals to Correct Usage are only a part of the new philosophy; also that the arguments used are not so very different from respectable and traditional ones like charges of equivocation, of hypostatization, or of ignoring distinctions. They are primarily critical weapons however. True there is a constructive side in the study and detailed differentiation of the various functions of language, but that is hardly philosophical in itself; its philosophical importance lies in its providing new ways of demolishing false theories or of solving problems. Yet

[1] F. Waismann, 'Verifiability', *Proc. Aristot. Soc.*, Supp. Vol. XIX, 1945, reprinted in *Logic and Language* (ed. Flew), Series I.

[2] See J. L. Austin, 'Other Minds', in *Proc. Aristot. Soc.*, Supp. Vol. XX, 1946, reprinted in *Logic and Language* (ed. Flew), 2nd series.

[3] See § 5 below.

[4] See p. 224 below; also e.g. W. B. Gallie on Mental Acts in *Proc. Aristot. Soc.*, Supp. Vol. XXI, 1947, and his controversy with A. C. Ewing in *Mind*, 1948.

even those who hanker after philosophy in the grand manner must admit the value of being saved from perplexity and error, so we must ask whether the new movement achieves these aims; to do this we must see its techniques in action rather than try to judge it by general theses alone. I shall only be able to deal here with the application of these techniques to perceptual problems, leaving open the question of their success or failure in other types of subject-matter.

4. RYLE AND *DILEMMAS*

In Chapter III we considered Ryle's criticism of the Sense-datum Theory, and all we need do here is note how little it depends on linguistic grounds for what little validity it has. The first charge, that sensing sense-data is really observing sensations, which is absurd, was an *Ignoratio Elenchi* against the Sense-datum Theory, though valuable against those (chiefly neurologists) who talk of of perceiving sensations or percepts built of them. But its point lay in the non-linguistic criticism that the view involves an infinite regress or a faulty duplication of perceiving. The suggestion that sensations are not the sort of thing we can observe is of limited value, especially if based on considerations of language, for the physiologist might reply that if the plain man does not speak of perception or awareness of sensations it is merely because he has not studied the facts of the causation of perception; if he did study them he would see the necessity for this extension of the concept of sensation. The second charge, that we cannot observe looks or glimpses any more than we can eat nibbles, is linguistic or rather conceptual enough, but is an unnecessarily oblique way of indicating the main error of the theory, namely that it reifies look and appearance. The third, that the notion of incorrigible sensing is a confused apprehension of the task/achievement distinction, is at best only an explanation of error. Criticisms like those in my Chapter II must be developed to show the notion is in fact an error, and if my account is correct Ryle's explanation is also faulty.

We must now turn to Ryle's latest discussion of perception in his *Dilemmas*. Somewhat unfaithful to ordinary language, he uses the term 'dilemma' as a name for a conflict of theories or lines of thought. As an important example he singles out the *impasse* which seems to arise from the physiology of perception: 'From one point

of view, which is that of laymen and scientists alike while actually exploring the world, we find out what is there by perceiving. From the other point of view, that of the inquirer into the mechanism of perception, what we perceive never coincides with what is in the world' (p. 2). His solution of this conflict takes three chapters.

In Chapter V he attempts to show by a long analogy that these two views of perception and the world are complementary not contradictory. I shall not quarrel with the conclusion here or with the *obiter dicta* warning us against loose usages of 'science' and 'world'; but I feel some doubt about the method used, that of analogy. I find it difficult to see that the long analogy Ryle gives from college accounting does more than illustrate what is meant by complementary descriptions and shows that there are such things. It can hardly show that the physicist's description of the world *is* merely complementary to the plain man's or that it does not supersede it and give a truer picture of reality. Nothing is done to refute the suggestion that the world as we see it is just appearance due to the deficiencies and distortions of our sense organs. To make it probable that the descriptions are complementary one would need to show that their differences are due to equally valid methods of observation and viewpoints, and to undermine the suggestion that the physicist is right because he uses precise and accurate instruments to reveal features not perceptible to the naked eye. As Ryle does not do this, his solution of the conflict, like much of the tangle-removing offered by Linguistic Philosophers, will appeal only to those who already have an unshakeable faith in the common-sense view.

The conclusions of Chapter V are then applied to the traditional problem of Primary and Secondary Qualities. Colours, tastes, sounds, smells and so on have no place in scientific calculations and theories; hence it has been argued that they are in the mind of the observer and, unlike their quantitative correlates, e.g. sound waves, do not form part of the external world. Ryle rejects this by pointing out that scientific impartiality should not be construed as scientific hostility; even if these qualities do not enter into the scientific description, that description is limited to one aspect only, and they are prominent in the complementary ordinary account of the world as we perceive it. Once again there is a long analogy, from Bridge this time, to show how different concepts or terms can apply complementarily to the same subject.

Now Ryle's target is a dubious argument, and he rightly attacks its premiss that what does not appear in scientists' (or rather physicists') descriptions has no reality. But the mistake is not about the logic of language and needs no Linguistic techniques to expose it; the faulty premiss is simply a gratuitous and unjustified assumption, at least unless the general position of the Representative Theory is accepted. Furthermore it is only the weakest of the arguments that have been adduced to show the alleged mind-dependence of sensible qualities. Historically the more influential one was the relativity argument that colours, warmth and similar qualities are subjective and less real than measured scientific properties because they vary with the state and position of the percipient, and with the nature of the intervening media. It was also held that discoveries about the causation of perception pointed to the same conclusion. Ryle does not deal with the relativity argument, but he does have something to say in his Chapter VII about the 'dilemma' due to the physiological account of perceiving, and we must now examine it.

The problem is posed by the common inference from the physiology of perception that seeing and hearing are the mental end-stages of an otherwise physiological process. The scientists lament that, while they can trace the process up to the brain, they cannot discover the final stage in the mind or the change-over to it—in fact they cannot conceive how they could discover them by observation and experiment. Nevertheless they do not see how their postulation can be avoided, and the temptation exists to attribute not only the perceiving but also sensible qualities to the unobservable mental end-stage.

Ryle claims that this common scientific and philosophical conclusion is wholly misguided, for (*a*) seeing and hearing are not inexplicably unobservable phenomena because they are not phenomena at all and are not activities, not the sort of thing that could be observed; (*b*) they are not states or processes at all, and so cannot be the psychological or physiological end-stages of processes. In a positive account of what they are, Ryle refurbishes his task/achievement distinction; we have now a distinction between verbs which describe activities or processes and those whose function is to declare a terminus. The latter are not used in the continuous present or past tenses, and examples are winning a race or scoring a goal. I cannot be occupied in scoring or finding or

winning; in the same way, though I can be looking for or at something, I cannot be or be occupied in seeing it. 'Perceiving is the scoring of an investigational success' (p. 109), in contrast to looking, and is not an activity or process but the successful completion of one. 'The programme, therefore, of locating, inspecting and measuring the process or state of seeing, and of correlating it with other states and processes, is a hopeless programme . . . because the idea that there was such a quarry was the product, almost, of inattention to grammar' (p. 104).

Ryle's own programme here seems thoroughly linguistic, and he is arguing from the way perception verbs are used in ordinary speech to the nature of what they refer to or describe. Let us take the first contention, that seeing is not a phenomenon or activity or the sort of thing that can be observed. This may not be meant as a separate point from the main one that it is not a process, and Ryle says very little about it; he merely remarks that no one, not even I myself, 'can catch me in the act of seeing a tree—for seeing a tree is not the sort of thing in which I can be caught' (p. 102). But it merits separate consideration, for these terms are not all synonymous and there is an ambiguity in 'phenomenon'. The word is often loosely used to mean 'occurrence' or 'happening', and Ryle could hardly deny that scoring a goal or seeing something is a phenomenon in that sense—it can be dated for example. What then about the stricter meaning of 'something appearing', 'something observed'? Can we accept the view that seeing is not the sort of thing that can be observed or that one can be caught doing? I think we can—we may notice, observe or watch people looking or listening but not seeing or hearing. But this does not mean that seeing is not an activity, and it has nothing to do with perceiving's being a terminus or the scoring of a success, for we can watch people winning races or scoring goals. The point is that we think seeing and hearing presuppose some private experiences of the percipient. Hence the reason that we cannot observe someone seeing is not that seeing is not an activity, but simply that it is not, or not wholly, an overt one. (In so far as overt processes are involved they are only susceptible to scientific observation; there is not the visible durable staring or set of the body by which the naked eye can detect looking or listening.)

Ryle wishes to assert, however, not only that others cannot catch or observe me seeing, but that I cannot catch myself in the

act of seeing; and if this is true the explanation about private experience or activity would not hold, for I can catch myself day-dreaming or musing. But that we do not talk of catching oneself seeing is presumably because 'catch' suggests something for which one is responsible or at fault; thinking of a certain subject or day-dreaming are sufficiently controllable, or at least preventable, for the notion of responsibility to be associated with them. Similarly listening or looking are controllable activities rendering seeing and hearing possible; but the latter are involuntary—'I couldn't help seeing'—and so the fact that 'catch' is not used of them does not mean they are not activities or phenomena. As therefore 'catch', with its suggestion of responsibility, and 'observe', with its suggestion of overtness, are unsuitable, the many philosophers and psychologists who have held that we can be aware of our own seeing and hearing have said instead that we introspect them. Ryle has elsewhere denied that introspection occurs,[1] and in view of the importance of the topic for later chapters as well as this, I shall digress a little to examine his reasons.

Ryle's general objection to introspection is that it falsely supposes a privileged access to private or ghostly mental events; and his specific objections are: (i) It makes the unplausible assumption that we can attend to two things at the same time, that we can be thinking of some problem or watching some event (i.e. be attending to it) and yet at the same time be introspecting the thinking or watching (i.e. be attending to the attending). Ryle admits that we may speak of division of attention, but seems to favour the view that this is a rapid switch of attention. (ii) To avoid an infinite regress there must be mental events we do not and cannot introspect, if only the alleged events of introspection. (iii) Introspection must be far from infallible, for those psychologists who have relied on introspective methods have reported conflicting 'facts' from it and have not been able satisfactorily to solve disputes by it. (iv) The violent passions cannot be introspected—one cannot coolly observe one's own anger.

The last three objections are clearly only valid against an extreme view maintaining that introspection always occurs or always could occur and that it is infallible; but they hardly touch more modest claims, namely that it is not continuous but occasional, often

[1] *Concept of Mind*, pp. 163 ff.

requiring some deliberate effort of attention, and that it is in general reliable evidence of the occurrence of various experiences and mental activities. The difficulties mentioned only arose because psychologists tried to build too much on it. The first specific objection is rather vague—what counts as 'one thing', and does 'at the same time' mean 'within the specious present'? But it just seems a fact that we can divide attention sufficiently for introspection to occur, and it is difficult to see how Ryle can deny this except on the evidence of introspection. In fact he has to concede an awareness of our own thoughts and experiences, but he claims that it is after the event, not contemporaneous with it; we pay 'swift retrospective heed' to our own experiences and states of mind. Now we can readily admit that retrospection does occur, but it can hardly be the only mode of access to our thoughts and feelings, for it seems akin to memory (thus Ryle glosses it by the terms 'recall' and 'recollect'); so retrospection of ourselves thinking for example, seems to presuppose past introspective awareness of it, just as recollection of a scene presupposes past seeing of it. But whether the 'intro-' or the 'retro-' is stressed, the point seems to be granted that we can attend to and have access to our thoughts and experiences. Ryle's general objection is puzzling in that he seems to deny that even retrospection gives us 'privileged access'; but he can hardly deny that intro- or retro-spection is privileged in the sense that by it I can know what topic I am thinking of or what colour I am experiencing, whereas you cannot; you may infer it from my behaviour, but that is indirect and comparatively chancy. It is the special ontological status claimed for the experiences introspected which is Ryle's real and most plausible target; but that is to deny an interpretation of introspection, not the activity itself.

We may conclude then that Ryle has not overthrown a modest belief in introspection, and even the admission of retrospection is sufficient here. Once it is agreed that we can be introspectively or retrospectively aware of our own seeing and hearing, as well as of looking and listening, there seems no force in Ryle's first claim that they are not activities or phenomena; that they are not, or not wholly, overt and publicly observable is beside the point, since we can be aware of the private experiences involved.

Ryle's second contention is that seeing and hearing are not states or processes, and so cannot be the end-stages of a process.

This is however a *non sequitur*; a process does not necessarily have a state or process as an end-stage, it may terminate in an event that is instantaneous, or almost so. Thus the journey of the flame along the fuse ends in the detonation, the instantaneous end-stage of the process of blowing up the bridge. Nor are Ryle's linguistic arguments for showing that seeing is not a process very convincing. They are:[1] (i) 'Aristotle points out, quite correctly (*Met.*, IX, vi. 7–10) that I can say "I have seen it" as soon as I can say "I see it".' To generalize the point that I think he is making, there are many verbs part of the business of which is to declare a terminus.' And a terminus, like a beginning, has no duration, one cannot ask how long it is. (ii) The end of a process is the termination not the effect of it. (iii) '. . . with certain reservations, verbs which in this way declare termini cannot be used . . . in the continuous present or past tenses. . . . I can be looking for or looking at something, but I cannot be seeing it.' This apparently is because 'the verb "to see" does not signify an experience, i.e. something I go through, am engaged in. It does not signify a sub-stretch of my life-story'.

In the first place it is hardly fair to saddle Aristotle with this doctrine. He was distinguishing between 'processes' (κινήσεις) directed to some end outside themselves and 'activities' (ἐνέργειαι) which are ends in themselves. He meant 'end' (τέλος) in the sense of 'goal' not 'terminus', and his argument is not concerned with instantaneity but is to show that an 'activity' may continue indefinitely. One can at the same time say 'I see' and 'I have seen' because having seen does not prevent one seeing; one cannot say 'I am learning' and 'I have learnt' because having learnt X prevents your still being in the process of learning it. In thus claiming seeing is an 'activity' not a 'process' Aristotle is using the same linguistic point to support a radically different conclusion from Ryle's. Aristotle's 'activities' may last a long time, as is seen by his other examples 'we think and have thought' or 'we are living well and have lived well', and could mostly be described in the continuous present if Greek had one (a lack shared by several other languages—which shows the feebleness of such linguistic considerations).

Secondly, there seem to be various ambiguities involved in Ryle's arguments. One might say that seeing is the end (=goal) of looking for or looking at an object, but hardly that it is the

[1] *Dilemmas*, pp. 102 ff.

terminus of the latter; one stops looking for X when one sees it, but if one then stopped looking at it one would no longer see it. Seeing and hearing may occur unintentionally, however, without previous looking or listening. One must also distinguish being the end of looking from being the end of a physiological process, and distinguish being an end from being an end-stage. Ryle's second point is not clear on this. 'End-stage' means 'final stage'; this final stage may continue for some time before it reaches its end, which is the end of the whole process, and it will normally be caused by the earlier stages, even if its end is not.

The important issue, however, is that of instantaneity. On the whole Ryle seems right in claiming that we do not use the continuous present of 'see' and 'hear', though in some situations seeing and hearing may last a time, e.g. 'What film did you see?', 'I saw him cross the street', 'I heard the noise gradually grow louder'. But if correct, all that Ryle's linguistic points about termini and continuous tenses show is that we speak as though seeing is not a process but is instantaneous, at least in the sense of 'beginning immediately', 'not coming on gradually', and that presumably we or most of us believe this; (though we do allow that we may become gradually *aware* of our surroundings). But this is quite irrelevant to the problem facing the scientist or philosopher, for the belief seems based on ignorance of the causation of perception. Seeing a house may seem to be quite immediate, and in no way to be a process, but it takes a finite time for light rays to travel from the object and for nervous impulses to travel to the brain; small as these time-lags may be they cannot be ignored by any sound theory of perception. We must say either that seeing or hearing the object is the whole causal process or that it is the end-stage of it. The latter, the expedient adopted by the causal theories that Ryle is attacking, allows one to say that perceiving is instantaneous, but means that one perceives not external objects but their remote mental effects; the former is far better, as I shall argue in Chapter X, but it means the abandonment both of Ryle's thesis and of the common-sense notion of perception as immediate confrontation, a notion which also proved inadequate to deal with the facts of illusion.

Ryle's linguistic techniques are thus of little use in dealing with these perplexities about perception; on the main one, that posed by physiology, the most he shows is that common sense does not

think perception a process, and by thus confirming it in a false assumption (one in fact shared by the view he attacks) he blocks the way to the final solution. The underlying reason for his failure seems to be that the difficulties do not arise within the plain man's beliefs as assumed by or expressed in ordinary language. In so far as a philosophical puzzle is due to confusion within such beliefs or to misunderstanding of them, it is plausible to suggest that attention to ordinary language is the royal road to a solution, though even then it may well have to be supplemented by the detection of traditional fallacies. But it is difficult to see how the study of the logic of language can resolve conflicts caused by non-linguistic extra-logical factors, and many of the intractable problems of philosophy are of this kind; they arise out of the impact on traditional concepts and beliefs of scientific discoveries and theories, of changing social and economic conditions or of modern political forces and ideas. Thus the 'dilemmas' of perception were originally posed by simple observational facts about illusions, hallucinations and relativity, which seem so difficult to square with our beliefs in a real world simply and directly observed by us. And they have been developed and intensified by scientific findings and theories about the nature of matter and the physical and physiological processes involved in perception, most of which run contrary to ordinary notions and beliefs. Furthermore, there are challenging investigations being undertaken by experimental psychology into the various factors, particularly mental processes, controlling perceiving, and it would be obscurantist folly to ignore them and the problems they present. Consequently, however valuable the new linguistic techniques may be as critical instruments, their most expert use will not avail to solve these problems whose roots lie outside ordinary language and ideas; they are quite unsuited to the reconciliation of common-sense beliefs with new discoveries and to the construction of a comprehensive theory to explain all the facts skilled investigation has revealed.

Some Linguistic Philosophers have sought to evade these conclusions by claiming that the tasks outlined fall within the province of the scientist not the philosopher, so that it would be trespassing to undertake them. But it would be improper as well as unventuresome for philosophers to surrender whole fields of discussion in this way and to confine themselves to accounts of

'how certain words work'.[1] Problems like those raised in the first chapter of this book, and the synoptic aim of a comprehensive theory of perception covering all the facts about it, have always been traditional tasks of philosophy, bulking large in the works of Descartes, Locke, Berkeley, Hume and Kant. To discuss these questions is not to do science but to use it; it is to press into philosophical service the discoveries of science in order to achieve the aim of a full understanding of the nature of man and his relation to the world. That it is no longer fashionable to regard such an aim as philosophical is a departure from tradition, and it is difficult to see in it any cause for rejoicing or self-congratulation. Furthermore it would be foolish to expect that the abandonment of such tasks to the scientist will result in their being properly performed. There is not just one science but many, and the increase of specialization and compartmentalization even within any one science is notorious. It is a matter of current complaint by scientists themselves that the enormous increase in the body of knowledge and the demands of intensified research in narrow fields make it more and more difficult for them to keep abreast with progress in allied branches of their own subject. If, therefore, 'science itself needs liaison agents'[2] for its own integration, it would seem idle optimism to leave to it the liaison between ordinary beliefs and modern discoveries. And, as Stebbing has shown and my next chapter will confirm, when scientists have attempted this task they have often made quite elementary philosophical errors.

Thus the traditional synoptic and interpretative rôle of philosophy is more vital than ever. It is also more difficult; for whereas in the past famous philosophers like Plato, Aristotle, Descartes, Leibniz and Kant could and did have wide first-hand experience of mathematics and science—indeed some were outstanding scientists—the great increase in the sum of knowledge has made this almost impossible. One has therefore to take the facts second or third hand from the scientists and to accept their accounts of their discoveries. This naturally may lead to mistakes or, when the scientists differ among themselves, to perplexity. But it is better to make the attempt and fail than tamely to elaborate distinctions of the uses of words.

[1] Ryle in *Philosophical Review*, 1953, p. 185.

[2] *Discovery*, 1956, p. 180.

5. MALCOLM AND CERTAINTY

The attempt to solve the problem of certainty is one of the most persistent applications of linguistic techniques to the problems of perception, and one where success might appear most likely, for science is not involved. The solution offered amounts to a defence of the plain man's assumption that certainty and real knowledge can be attained in perception after a few checks and tests. This assumption has usually been denied by philosophers on the ground that, owing to the continual possibility of illusions and hallucinations, an infinite number of tests would be required for complete certainty. But it has recently been defended, notably by Professor Malcolm.[1] His main case is as follows:

The philosophical argument against certainty is not an empirical one, for the sceptic is not disagreeing with common sense about the facts of the case. He cannot claim empirical evidence of failure after a large number of tests, nor would any empirical tests make him change his opinion. The argument therefore attacks the attribution of certainty to empirical statements as linguistically improper, as a form of self-contradiction and it is enabled to do this by the meaning it has given to 'certain', namely 'without logical possibility of error', i.e. 'that which it is self-contradictory to deny'. But this is logical not empirical certainty, and it is absurd to suppose that 'certain', when used in empirical statements, means either this or 'having passed an infinite number of tests'; any argument which depends in this way on giving one's own special definitions to key terms is thereby fallacious. 'Certain' has a well-known use in ordinary language for empirical statements, differing from that of 'logically certain' in *a priori* ones; it means 'without empirical possibility of error'. Empirical possibility is just the normal kind of possibility, well known but difficult to define. Any philosophical attempt to attack the propriety of ordinary expressions and uses is futile, for they cannot but be correct. (By 'ordinary expressions' is meant 'those normally or ordinarily used to describe a situation'; and it is 'correct' in the sense of 'making good sense', 'not false or misleading', and not grammatical correctness which is at issue).

Malcolm supports this by passages to show that philosophers

[1] In *The Philosophy of G. E. Moore*, ed. Schilpp, pp. 346 ff., and in *Mind*, 1942, pp. 18 ff.

have in fact confused logical certainty with empirical certainty. He claims there is no connection between the two senses of 'possible', and so between the two senses of 'certain'; hence there is no justification in arguing that because a statement is not logically certain it is therefore not empirically certain. Verification, empirical tests and temporal considerations, e.g. number of tests, are relevant to empirical certainty alone; logical certainty and possibility are simply a matter of what it is self-contradictory to deny, and to show this is not to verify anything.

He adds that the philosophical attempt to limit 'certain' to 'logically certain' and hence to deny it to any empirical statement is not only fallacious but has other faults. The main one is that it destroys valuable distinctions within language. The distinction at present made between certain and uncertain empirical statements is an important one, and if empirical statements are not allowed to be certain it will be destroyed, and we shall have to invent new words for it. Similarly, as only empirical statements can be verified, to deny them certainty and verification is to say that nothing can be verified. Furthermore the philosophical argument is misleading in making it true by definition that no empirical statement is certain. We normally think it important whether an empirical statement is true or not, and so the claim that none of them is certain sounds like an important discovery, and would be if 'certain' has its ordinary meaning; but being due to redefinition of the word it is merely trivial. Again, people could never have learnt the meanings of the words 'certain', 'verify' or 'uncertain' unless they had experienced something certain, just as they could never have learnt the meaning of 'A is to the left of B' unless some things had been to the left of others.

These arguments are linguistic on the surface—more so in their actual statement than in my summary—but they have a hard logical core. This is not unexpected for, as we have seen, apparently linguistic criticisms may amount to pointing out traditional fallacies without using traditional names. Thus the charge about confusing two senses of 'certain' is that of Equivocation, whereas the accusation of redefining 'certain' is an allegation of *Ignoratio Elenchi*. The validity of Malcolm's case is, however, far from clear.

In the first place it is difficult to accept the claim that the issue is not a factual but a linguistic one and that both sides agree about the facts. The philosophers do not need to bring empirical

evidence of failure after a large number of tests, for the onus of the proof is on anyone who asserts that a number of tests leads to certainty; but in fact they do bring such evidence, for they point to well-known cases of error where the percipient was absolutely convinced that he was right and had made adequate checks. Also if one side says A is certain and the other says that it is not, then they are contradicting each other and, provided that they mean the same by 'certain', their opposition is about the facts of the case, the truth or falsity of the statement made; it is not a linguistic question, e.g. about what is the most vivid or felicitous description. The proviso here can be supported by rejecting Malcolm's claim that the philosophical case rests on a redefinition of certainty. The philosopher is not giving the word the special meaning of 'logically certain', but is using it in a more general and quite ordinary and accepted sense of 'what admits no possibility whatever of error'. Admittedly this is demanding an unusually high standard and we may therefore call it 'strictly or absolutely certain'; but such high standards are surely required in a philosophical discussion, and one is not redefining a word merely by using it strictly in its accepted sense. Thus we may say we have a pound of tea or have drawn a straight line; on being pressed we should admit that we have not exactly a pound or have not drawn an absolutely straight line. But that is not redefining these terms, it is merely using them very accurately without allowing the approximations necessary for everyday social life. Similarly the defenders of the philosophical argument can claim that the plain man, once the occurrence and possibility of illusions has been pointed out to him, will agree that, strictly, perceptual statements are not certain; to refer to them as certain is merely to use the word with a looseness appropriate to ordinary life and language, but not to philosophical discourse.

Granted then that the philosophers are simply applying strictly the ordinary meaning of 'certain', the following dilemma faces Malcolm: If he and the plain man are also using the word in this sense, then they disagree with the philosophers about the facts by contradicting them, and the claim that perception yields certainty is due either to ignoring the scope of illusions and hallucinations or to using the word loosely for social purposes. Hence appeals to the correctness of such ordinary usage would be of no philosophical significance; it is a usage based on ignorance or correct only for everyday social life, not for philosophical exactness. But if he is

accepting the facts as the philosophers point them out and is using the word 'certain' in a way which allows some possibility of error, then it is he who is redefining the word and his argument may be turned against himself; also his appeal to ordinary language is double-edged, for by admitting that something can be certain when error is possible he is going against correct ordinary usage. This last point would be hotly denied by Malcolm, but that is because of the vagueness of 'ordinary language' and 'use' or 'usage'. This can be seen by means of the well-known distinction between 'sense' (meaning or connotation) and 'reference' (that to which the word is applied, its denotation). The ordinary sense of 'certain' is that claimed by the philosophers, namely 'admits no possibility whatever of error', but the ordinary referents of the word include perceptual statements. Now Malcolm seems to rely on the latter as his standard—the ordinary expression, which is the correct one, is the one ordinarily used to describe a situation. But no one denies that 'certain' is ordinarily used of empirical statements; the point is whether it is a correct use, i.e. one which would be accepted as justified on a strict and philosophical standard of accuracy. And it is not correct in this sense; it is a loose use for practical convenience with lower everyday standards of accuracy, one which has to be rejected if one is going to use the word strictly in its normal sense.

There thus seems to be a reasonable reply on traditional lines to much of Malcolm's argument. (It is on traditional lines in that it presupposes a distinction between sense and reference, between meaning and use; this distinction seems to me to be obvious, but I have no space to defend it against recent denials.) An important contention is not yet answered, however: if, speaking strictly, no empirical statement is certain, how are we to maintain the distinction indicated by the everyday use of 'certain' and 'uncertain'? One suggestion, based on Professor Campbell's article,[1] would be to label this looser use 'practically certain' and add the rider that when one is speaking ordinarily and without philosophical exactness 'certain' means 'practically certain'. The difficulty about this is that 'practically certain' already has an ordinary use and means something less sure than 'certain' in ordinary situations. But the essential point is the over-riding importance of context.

[1] C. A. Campbell, in *Proc. Aristot. Soc.*, 1944–5. See also his general criticism there of Malcolm's view.

When speaking with the plain man we can use his distinction of 'certain' and 'uncertain'; when doing philosophy we need a higher standard of accuracy and we can remind ourselves of this by setting 'absolutely certain' against 'practically certain' or 'certain in practice' and both against 'uncertain in practice' or 'very uncertain'. But if we forget the context none of these devices will avoid confusion.

Malcolm's other points are easily disposed of. To say that 'verify' only applies to empirical statements is false even in ordinary language; the word simply means 'establish the truth or correctness of' and we may verify a man's figures by checking his calculations. The argument that people could not use the word 'certain' unless they had experienced something certain is both weak and double-edged. It is weak in that the philosophical case does appeal to judgments alleged to be made with absolute certainty, namely mathematical ones; and it is double-edged in that Plato and Descartes used the same sort of argument to show that certainty must, respectively, have been experienced in previous life or be an innate idea. And its basic premiss is faulty for it ignores the possibility of extrapolation; we could form the ideal of absolute certainty by arranging various examples of uncertain things in order of decreasing uncertainty.

Nevertheless this traditional case against Malcolm seems, like a more famous example, to admit of no answer but produce no conviction. Despite its strength one is still left with a marked reluctance to admit that statements like 'This book weighs less than a ton', 'The summer of 1955 was drier and warmer than usual in Britain' or 'Petrol is inflammable' are uncertain or even not absolutely certain. Error about them seems not only improbable but inconceivable. How could we be wrong about such things? It would be an incredible dream or illusion or hallucination that could make us all mistaken about them. Hence, particularly if one has been convinced by modern Logistic or Formalist theories of mathematics that there is not some higher standard of factual certainty in mathematical reason, one may have strong sympathy with Malcolm's fundamental point that the philosophical claim that empirical statements are uncertain amounts to no more than the assertion that their denial is not self-contradictory. The contrast is between the logical necessity of an *a priori* statement and the logical possibility of the falsity of an empirical one. If the

assertion of the uncertainty of empirical statements can mean no more than this it is indeed trivial, for it is just a reassertion of the difference between *a priori* and empirical statements; this kind of uncertainty applies indiscriminately to all the latter whatever their content.

But if this is Malcolm's main and most plausible point he was unwise to bring in the appeals to ordinary language, since they merely confuse the issue. His case rests on a philosophical distinction of which the plain man knows nothing and which is not reflected in ordinary language. By thus trailing his coat he is open to refutation by those who point out the irrelevance of ordinary applications of the word to its strict sense and dwell on the plain man's disregard or ignorance of the possibilities of error. He would have been wiser to depend entirely on advocating the distinction between logical and empirical possibility, and should have tried to make the latter clearer.

If this suggestion is followed then a distinction will be recommended within 'possible' and 'certain' on the ground that the two fields to which they are applied, the empirical and the *a priori*, are so different in character that to use the same sense of these words for both merely results in paradox and confusion. One should distinguish between logical and empirical types of both possibility and certainty. A statement is logically certain if there is no logical possibility of its being false, i.e. if its denial is self-contradictory (or if it is otherwise unconditionally necessary). No empirical statement will thus be logically certain, for they are all contingent and can be denied without self-contradiction. This is an analytical statement following from the definition of empirical (as not *a priori*), and so to say that a given empirical statement was not certain in this sense would merely be to say that it was empirical. We therefore need a second sense of 'certain' which can significantly be used to make distinctions within empirical statements. Let us say that a statement is empirically certain if there is no empirical possibility of its falsity; the problem then is to define empirical possibility, and it is not exact enough for philosophy to say like Malcolm that it is the familiar sense of 'possibility'.

We could interpret there is 'no empirical possibility of error' as 'no further empirical tests are of any value for confirmation; it has passed all relevant ones'. This criterion may be elucidated

by considering how one would set about verifying an empirical statement, e.g. 'There is a blue book on the table'. We should look at the table, should pick up the book, feel it and examine it, i.e. use the simple evidence of the senses in confirmation of each other; then we should think of various possibilities of illusion, e.g. that it was a whisky flask designed to look like a book, and these possibilities could be ruled out by opening it and turning the pages, or by reading it; finally the possibility of hallucination would be dealt with, and here the evidence of others would be most convincing—we should get other people to handle and read it and confirm that there was a book there, and we could also check its purchase and recent history. Normally much of this would not be needed, but we are trying to rule out error completely. After a finite number of tests of this sort—they would naturally vary for different situations—we should reach saturation point, at which any further tests would be useless. The characteristics of saturation point are that we cannot conceive any new *kind* of relevant test to make or any new kinds of illusion or hallucination to be guarded against; any more tests would simply be repetitions of old ones. When saturation point has been reached and no empirical possibility of error is then left, we can say that the empirical statement is certain.

The traditionalist philosopher will say, however, that something might still occur to falsify the statement and show that there was an illusion or hallucination after all. But this objection merely reaffirms the logical possibility of error, which is not denied; to show that saturation point had not been reached and that a new kind of error was conceivable the objector would have to suggest one—which could then be ruled out. Furthermore let us suppose that after we had reached saturation point the book suddenly could not be seen.[1] In all probability we should not lightly scrap the evidence and should not say, 'There can't have been a book there after all'. The tendency would be to seek some other hypothesis compatible with the previous presence of the book. We should presume that someone had removed it while we were not looking or while our attention had been diverted as in a conjuring trick; and if all plausible answers like that could be ruled out, which is scarcely conceivable, we might begin to question our beliefs about books and similar objects, e.g. the belief that they do not disappear

[1] Following a suggestion in Ayer's *Philosophical Essays*, p. 134.

spontaneously. This may seem a far-fetched case, but there are others where we should more readily amend our beliefs about physical objects than reject our present tested observations. For example, if we got a piece of iron which after exhaustive tests was found to contract on heating, rather than admit its contraction as uncertain we should say that there were exceptions to the rule that all iron expands on heating or that this was a special kind of iron, false or denatured iron, or an isotype of iron—there are various terms for special cases. Hence we might perhaps add a further criterion, that a statement of particular fact is empirically certain if, when faced as the result of further evidence with a choice between abandoning it and revising some general principle or scientific law, we would rather do the latter. But the occasions for such a criterion must be rare.

We may suggest then that a statement be regarded as empirically certain if there is no empirical possibility of its falsity, meaning thereby that it has passed all useful tests and reached saturation point. No further tests are of value because no new kinds of error are conceivable, and the only doubt that remains is the purely logical one that it is not self-contradictory to assert that the next repetition of a test might give a different result; but if this did occur after saturation point, we should adopt some other hypothesis to explain it rather than abandon the statement in question and the results of past tests.

There are certain weaknesses in this criterion of empirical certainty, for example there is an air of vagueness and subjectivity about it. In stressing conceivability it seems to make certainty depend on our powers of imagination, which are in turn governed by the kind of illusion we have experienced or heard of. But against this the arguments against certainty also rely on illusions, and so, even if by ruling out all conceivable ones we cannot prove certainty, we can at least show that no reasonable ground remains for doubt. Similarly the choice between the statement concerned and other hypotheses, even those revising scientific laws, seems a variable and subjective kind of criterion, though this may be because actual examples are so very rare. But once again those who deny certainty are not on the firmest of ground, for they can only claim a given statement is uncertain by assuming the truth of others; thus, when the book was no longer seen on the table, one would not doubt the earlier evidence that it had been on the table

unless it was certain that no one had removed it—and the sceptic could hardly claim that was certain.

However, the more the traditional criticisms are pressed to show that there is no absolutely irrefragable proof of empirical statements, the more they underline the original point that empirical statements are of such an entirely different type from *a priori* ones that to apply the same sense of 'possible' and 'certain' to both can but result in confusion and paradox. One cannot demonstrate empirical statements in the way mathematical or logical statements can be demonstrated and their relation to their evidence or ground is different. It is therefore reasonable to allow that the standards of certainty applicable to them are different also. The criteria of empirical possibility and certainty recommended may be faulty, but they are at least first approximations to a distinction which should be made. The alternative is even less satisfactory: to claim that exactly the same type of certainty is applicable to two such disparate classes of statement means that the whole of the larger class has to be written off *a priori* as uncertain; indeed, granted the recent tendency to reject any form of rational intuition one is then left with no certain statements about the real world except a few truisms; mathematical statements, at least, would have to be excluded on the dominant modern view that they are parts of hypothetical systems whose first principles are largely only postulates.

In this way one can up to a point defend the common-sense belief in the certainty of tested perceptual statements. One cannot do it directly, as Malcolm would like to do, by claiming the overriding correctness of the ordinary use of expressions like 'certain', for philosophy can claim that such use is based on ignorance or on the practical requirements of everyday life. But one can, in view of the marked difference between *a priori* and empirical statements, suggest a revised notion of certainty which will be much more suited to the latter and will avoid sterile paradox. And this will give indirect support to the common-sense distinction of 'certain' and 'uncertain' by enabling a corresponding differentiation to be made within empirical statements.

CHAPTER SIX

THE REPRESENTATIVE THEORY OF PERCEPTION

1. MODERN NEUROLOGISTS' STATEMENTS OF THE THEORY

We have now seen that the main current philosophical theories and methods do not provide a satisfactory solution to the central problems of perception. They can neither refute nor supersede a careful restatement and amplification of our common-sense notions, though the discussion has revealed some inadequacies in the latter. It is therefore time to re-examine the traditional causal theory of perception, usually called the Representative Theory, to see whether it is in fact so easily refuted as is commonly supposed by modern philosophers and whether a study of its failings can point the way to a fully satisfactory treatment of the problems.

This reconsideration is advisable on other grounds. First, the Representative Theory is a notable attempt to explain the causal processes involved in perception and to take account of the scientific evidence concerning the sense organs and nervous system. As our chief aim is a comprehensive theory of perception which will cover all the facts, we must naturally pay great attention to this evidence. An excellent introduction to this task is the study of classical attempts to explain it, for although the detailed study of these processes has made great advances, their general principle is much the same as in Locke's day; the philosophical difficulties lie mainly in the existence of a transmission system or causal chain, not in the composition of the links. Secondly and consequently, modern neurologists tend to assert theories which are in essentials the old Representative Theory though under different names like 'Physiological Idealism' or 'The Two-world Theory'. We can thus use versions of impeccable modernity in outlining and discussing the traditional theory.[1] Its very persistence and the perennial appeal

[1] For a modern outline of the theory I have followed J. C. Eccles, *The Neurophysiological Basis of Mind*, pp. 279–81, and Sir W. R. Brain, *Mind, Perception and Science*. J. R. Smythies' *Analysis of Perception* I discuss in Ch. VI, § 6.

it makes to those who consider carefully the scientific facts of perception render the theory of fundamental importance; indeed many philosophers who have tried to show its absurdity have been unable to disentangle themselves completely from it. Hume inconsistently advances arguments based on experiments on the nervous system and sense organs,[1] while Berkeley, after proclaiming the absurdity of unobservable matter as a cause of perceptions, goes on to offer a different unobservable cause. Kant's 'thing-in-itself' and Price's 'physical occupant' are also unknown causes of perceptions, while the latter's Generative Theory can only avoid the traditional difficulties by paradoxes about sense-data. And that Phenomenalists or Linguistic Philosophers avoid them is only because they ignore or fail to appreciate fully the problems posed by the scientific evidence.

It will be convenient to divide a modernized exposition of the Representative Theory into four stages, considering first the nature of the physical and physiological transmission.

(i) If for example we look from directly above at a circular plate, light rays reflected from it strike the eyes and are focused on to the two retinae and set up a roughly circular pattern of stimulation on the mosaic of sensitive cells of each retina. (We may neglect the complication due to slight eye movements.) This stimulation causes a discharge of impulses along the nerve fibres leading to the brain, and eventually evokes a specific spatio-temporal pattern of impulses in the cerebral cortex. Apparently, however, this final pattern will not be circular from a circular object, but will consist of four flattened semi-circular areas of excitation; as Brain puts it with more verve than syntax (p. 9), 'when we perceive a two-dimensional circle we do so by means of an activity in the brain which is halved, reduplicated, transposed, inverted, distorted and three-dimensional'. In sound a different type of cortical representation seems to occur: if one hears a note of say 3,000 cycles a second, sound waves of this frequency strike the ear and set vibrating the part of the cochlea responsive to it. This vibration sets up impulses in the auditory nerve fibres, and the impulses in turn excite a special area of the cerebral cortex. A note of a different frequency would set up activity in a slightly different area, and the range of frequencies that can be heard is represented by a series of excitation areas along a strip of the brain,

[1] *Treatise*, I. iv. 2 (Everyman edition, p. 203).

though the situation is complicated by secondary areas of excitation. For touch also the various parts of the body seem to have a spatial representation, though a very distorted one, in the brain. The situation for taste and smell is understandably obscure as they are more difficult to test.

One must note that the impulses which travel along the nerves do not resemble their stimulus, either in themselves or in their frequency. The nerve impulses in the auditory and optic nerves seem to be of similar type, and the frequency with which the impulses follow each other seems to depend on the intensity of the stimulus and to bear no relationship to the frequency of the light or sound waves responsible. But the transmission of impulses is not along a single path or fibre. The optic and auditory nerves are each a bundle of very many fibres, and each fibre is connected to a different sensitive cell in the retina or cochlea at the one end and a different part of the cortex at the other (at least approximately, for there are complicating interconnections). The transmission of perceived qualities thus seems to depend on the set of paths or fibres by which the impulses travel and on their destination in the cortex. Attempts have been made to represent perceived qualities by a 'cortical map' of corresponding patterns in the brain,[1] but in so far as this is possible the 'map' is either a very distorted representation (if it is of seen or touched shape) or one in another medium (when a strip of the brain 'maps' a sound or colour spectrum).

(ii) As a consequence of one of these patterns of activity in the brain we experience a sensation or group of sensations, e.g. a colour patch of circular shape or a high-pitched sound. The occurrence of the brain activity is the necessary condition of the experience of the appropriate sensation: thus if the visual cortex of the brain is destroyed visual sensations do not occur. But more interestingly, it seems to be also a sufficient condition of the sensation. Admittedly it is commonly supposed that the proper working of the causal chain antecedent to brain activity is a necessary condition of perception—if the eye is damaged sight is lost. On the Representative Theory this must be reinterpreted: damage to the eye prevents the brain from being stimulated by the object and so prevents sensations caused by it; injury thus prevents a necessary condition of the sensation, viz. brain activity, but the eye is not a

[1] See E. D. Adrian, *The Physical Background of Perception*.

necessary condition of visual sensation for if the brain activity were otherwise caused the sensation would follow. This important point has been supported by experiment. Sensations can be produced by direct electrical stimulation of the appropriate part of the cortex, and the information thus gained has been used for drawing 'cortical maps', as a sensation of touch, for example will appear to come from the part of the body which is related to the stimulated point on the cortex. The sensation thus caused is unlike the normal tactile sensation and is difficult to describe; but the difference would seem to be adequately accounted for by the difference between direct electrical stimulation (excitation of a large group of cells at a fixed frequency) and the normal impulses from the skin (trains of impulses rising and falling in frequency and confined to fewer nerve endings). Sensations of colour and sound from direct stimulation are similarly vague owing to the unavoidable crudity of the stimulus. However, on the assumption that a closer reproduction of normal activity in the brain would give more life-like sensations, one can even explain dreams, hallucinations and mental images: they are due to activity in the visual cortex, and perhaps also the afferent nerves, activity not caused by stimulation due to the external object but similar to activity so caused. And one can at least deal with the classic case of the 'phantom limb'; if one's foot is amputated one may afterwards feel that it is still there and feel pain in the non-existent toes; this is apparently because the nerves which previously connected toe to brain and which remain in the untouched part of the limb, are still sending impulses like those normally due to external excitation.

(iii) Upholders of the theory seem generally agreed that we pass from the awareness of sensations caused by brain events to the awareness of percepts, i.e. of ostensible objects, which, though in fact private to the percipient, are regarded by him as public and external, or at least as externally caused. But they disagree as to how this projection or interpretation of sensations occurs. We may distinguish Actual Inference and Justificatory Inference views. On the former we actually proceed from sensations perceived as private to infer or construct a public world of objects. This seems to be the view of Eccles: The observers 'each with his own private and unique perceptual world come to agree on the existence of a single physical world' which explains them; 'Personal experiment from earliest childhood onwards, and communications

with others, are the standard procedures' by which we interpret private experiences 'as events in a single physical world'. Others hold that the private data are inferred to be effects, not parts, of the external world. The second type of view denies that any such inference occurs; our private world is always accepted as external or externally caused. The proper role of inference is thus the justification of this acceptance as far as possible, i.e. to the extent of showing that the private sensations or percepts do have public external causes which they represent and which are as described in science. Despite some contrary suggestions this alternative seems to be the one chiefly favoured by Brain, who claims (p. 76) that experiences 'reach consciousness already stamped with externality'; it is also apparently the view of Locke, who, however, exaggerates the extent to which we see things as externally caused rather than external. He says 'the actual receiving of ideas from without' 'gives us notice of the existence of other things, and makes us know, that something doth exist at that time without us, which causes that idea in us',[1] and he supports this 'sensitive knowledge' by 'concurrent reasons'.

This divergence of view is complicated by a similar disagreement about synthetic or constructive activity on the part of the percipient. Some hold that an actual synthesis occurs: our sensations are basically atomic and have to be combined into percepts and objects. Thus Eccles says 'all kinds of diverse patterned inputs are coordinated and linked together to give some coherent synthesis', though it is not easy to distinguish the various types of activity he supposes to occur. But if we reject the notion of atomic sensations and regard the unit of visual sensation as the whole of one view of an object, like Price's sense-datum, then we already have a percept in this respect, and the synthetic activity is not necessary to a single act of perception. Its place is then in the justificatory inference, as part of the process of showing that these percepts belong to external objects or families. It is thus the same sort of process as that which Price developed for showing that a sense-datum belonged to an external object and so advancing from 'perceptual acceptance' to 'perceptual assurance', but is added to a theory which interprets 'belong to' as 'caused by'.

(iv) Despite these differences, however, there is general agreement on the relation between the private world of percepts and

[1] *Essay*, IV. xi. 2. The concurrent reasons are given, IV. xi. 4–7.

sensations and the public world of external objects. The former is a representation or symbolization, rather like a map, of the latter;[1] this is the main representation which gives the theory its name and any additional representation by cortical patterns is ancillary to the main one and is the means by which it occurs. The old distinction of primary and secondary qualities is revived as well: some of the features of the private world, e.g. spatial relations, reproduce the external world fairly closely, but many of them, e.g. colours, sounds and smells, no more copy the external original than do the conventional symbols of maps, music or other representational systems.

Plus ça change plus c'est la même chose. In this modern neurological account appear all the key features of the seventeenth-century Representative Theory: hence it seems equally liable to the traditional charge of self-refutation. In steps (i) and (ii) it is assumed that we can observe and know the operation of physical objects such as nerves and brains; in steps (iii) and (iv) we are told we perceive only a private world, which is moreover widely different from the external physical world. If therefore our supposed observation of nerves and sense organs is itself merely experiencing a private and biased perceptual world, what justification have we for supposing that it is valid and gives a true account of their working? The last stages of the theory would seem to jeopardize the first and to destroy the evidence on which it is based. Indeed if we are thus enclosed within the barrier of our private world, how do we know what the real physical world is like, how far it differs from the private one, or even that there is an external world at all? We have no means of checking our theories about it, for the observations which we might suppose to verify them are in fact only more glimpses of our private world. The theory adopts what has been called the 'angel's view': it seems to assume we can observe both our mental experiences and the external world they represent, and can compare the two. This is impossible on the theory, and its supposition is due to a confusion of immanent and external viewpoints.

This basic epistemological difficulty may be put in other ways. One is to point out the weakness of the map analogy. We can make and understand maps because we can see directly the country that is mapped as well as its representation on the map; if we could

[1] Eccles, *loc. cit.*; Brain, *op. cit.*, pp. 58 ff., cf. p. 21.

only see the representation and had never seen the reality or anything like it, the map would be meaningless to us and we should not realize that it was a map. Again, whenever we assert or infer a causal relation between two things, we have either observed them both or have observed analogous cases of cause and effect. Here, however, we are asked to infer the cause from the effect without *ex hypothesi* being able to observe it, and that too in a causal situation which is *sui generis*. This illegitimate inference from the known to the unknown is concealed by the assumption in the first stage of the theory that we can observe external objects and their action on the senses; but the conclusion of the theory shows that this was an illusion—it was only observation of more private data.

Such a refutation has proved quite sufficient for many philosophers, but we must give the theory further consideration to see how it may be defended or improved on. Mere refutation is not enough as the scientific data will still require interpretation and explanation.

2. UNPLAUSIBLE VARIANTS REJECTED

To be fair to the Representative Theory we must take it in its most plausible form. We must therefore reject at the outset the Actual Inference variants with their suggestion that we do in fact infer the existence of an external world from private data perceived as such. In Chapter IV of his *Perception* Price has given a convincing refutation of this kind of view, which he calls the Causal Theory, and here we need only briefly show its weakness. Eccles claims that by personal experiment and communication with others we come to interpret our private world as events in a single physical world; but unfortunately he gives no details by which we could judge the adequacy of these means. Perhaps he is relying on some suggestions of Brain,[1] who in answer to the question 'If the observer's knowledge of any "world" is limited to his perceptions, how does he ever discover that there is any other "world"?' mentions inference based on the observation of others and experiments such as, (i) stimulating a person's brain and asking for his sensations, or (ii) inferring the speed of sound by observing a man hammering and noticing the increasing discrepancy between sight and sound of each blow as you move away. But these already

[1] *op. cit.*, pp. 56–7.

accept the existence of physical objects like brains, hammers and electrical apparatus, and so could only be for discovering what the external world is like, not that there is one. And like 'communication with others' they beg the question in that to assume one is really talking to another person is already to put oneself outside the alleged private world. Some childhood experiments may perhaps more readily be put forward, e.g. dropping things, putting things to the mouth, poking the finger through the holes in the fireguard. But they can be interpreted more plausibly than as attempts to infer from private to public world: they may be accidental, or from other motives, e.g. to attract attention, and if exploratory they are most likely attempts to find out what happens if one does X or to discover what Y is like.

But the real objection to Eccles' suggestion is twofold: (i) We are not conscious of having performed such experiments and feats of interpretation. It might be replied that we did in fact perform these activities in childhood but have forgotten it, or that the activities have become so swift and automatic as not to be noticed. But this is pure speculation without evidence and puts a terrible load on the infant mind. It is too much to suppose that the small child, to whom the distinction of public and private world would be meaningless, spends his time in such interpretations, many of which would have to be complex to be convincing. (ii) To interpret A as B you must first be conscious of A as A: if you interpret a pattering sound as rain on the roof, you must first have been aware of it as a pattering sound. But why assume that the private world of sensations ever appears as private to adult or infant? Even with efforts of introspection it is hard, if not impossible, to regard colours as private and mental; they seem undeniably external, and so probably have always seemed external, at least in so far as the external/internal distinction is appreciated at all. This might be due to the nature of their causation. In our experience pains, tickles and similar bodily sensations are almost always roughly located, e.g. one has not just a pain but a pain in the leg; and this may be an essential feature of sensations not originating in the brain, due to the fact that with sensations of different origin different sensory areas are activated. Hence an apparent externality, or at least a placing at the sense organ, might be an essential feature of the content of visual, auditory and similar sensations, since they are caused by nerve impulses from externally activated

sense organs. That this physiological placing is not inference may be seen from referred pains, which are not felt to be at the place where their true cause is, even when this is known to the sufferer.

The supposition of Actual Synthesis must also be rejected on similar grounds: we are not aware of performing it and are not aware of sensations as atomic or as small elements out of which objects may be constructed. As the result of binocular vision and of our awareness of depth, our world, even if private, probably appears from the first as roughly differentiated into objects;[1] or at least it is an undifferentiated whole in which objects are gradually distinguished, not a set of discrete elements to be combined.

Nor can we accept a further variant of the theory which Brain finally adopts in an attempt to avoid the obvious danger of self-refutation.[2] He suggest that the two 'worlds' are not distinct worlds or series of events, nor is one the representation and the other the real original, but they are both symbolic representations or languages. (He specifically likens this theory to Ayer's two language view.) Thus the perceptual world is a private sensuous representation of an underlying reality or series of events, and the physical world of science is an alternative and conceptual representation of the same reality. The second representation may seem to be more real and to be the cause of the former, but that is an illusion due to its greater accuracy.

Despite Brain's statement that he agrees with Ayer's two language view his own theory seems quite different. Ayer's languages are at least verbal systems and the facts they symbolize are sensory experiences; the sense-datum language describes these directly, while the material object language is a convenient way of referring to their grouping and sequences. So what Ayer regards as the one set of facts symbolized by his two languages corresponds exactly to one of Brain's languages or symbolic systems, namely his perceptual world. Brain's other language, his scientific conceptual system, would seem to be a sub-class of Ayer's material object language.

More important, as any symbolic representation or map must represent some original, Brain has to postulate a reality or system of events of which both sensations and science are symbols. Apart from being unlikely to appeal to Ayer, this postulation means that Brain has failed to solve the epistemological problem. The whole

[1] See my Ch. IX, 2.

[2] *op. cit.*, Chs. V–VII, esp. pp. 78 ff.

question at issue is how, if we are all along aware only of representation or effects, do we know that they are representations and effects, or learn what are the originals or causes. To be told that the supposed original, the physical world of science, is yet another symbol system is no help at all, for one then has to postulate a third factor, the unknown reality they are both supposed to symbolize. Again, if the public physical world is to be regarded as part of this conceptual symbolic system, then so must the events in the sense organs and nervous system discovered by physiology. Hence these events, being mere representations, cannot act as causes, and the initial stages of the theory are jeopardized. The main reason for supposing that the perceptual world was a representation and not reality was that it seemed to be the effect of a causal chain from external object to brain; if the object and causal chain dissolve into symbols we are left with theoretical chaos.

We must conclude then that these modern neurologists have not found a satisfactory way out of the epistemological difficulties. Nor are the traditional philosophical attempts, even to support the more plausible Justificatory Inference view, any more successful. Locke, for example, offers as 'concurrent reasons' to confirm our supposed assurance that ideas or sensations have external causes:

(i) The sense organs are necessary for the production of sensations, but do not produce them on their own; sensations must therefore be due to external causes acting on the senses.

(ii) Sensations obtrude and often cannot be avoided; I cannot help hearing a certain sound or, if my eyes are open, seeing certain sights.

(iii) Sensations, e.g. of heat, may be produced with pain; this distinguishes the actual sensation from the memory of it which is not accompanied by pain.

(iv) The senses confirm each other; if you see a fire you can feel it too, and you can see yourself write. In discussing this Locke adds what should really be regarded as another reason (v), that others too can see what you have written; i.e. that genuine sensations, as opposed to dreams, are shared or public in that others can have similar or qualitatively identical sensations at the same time.

The difficulty facing Locke is a double one: partly that while genuine sensations do have a feeling of externality, a 'tang of reality',[1] so do many illusions and hallucinations; and partly that

[1] cf. R. I. Aaron, *John Locke*, 2nd ed., p. 245.

he wants to show, not that colours, shapes, etc., are external (which is what we normally assume), but that they are private mental data whose cause is external. But his concurrent reasons scarcely support these points. The first and fourth do not take us outside the private world of ideas or sensations; all our evidence about sense organs is based on observation, on having further sensations, and the sense organs themselves are thus, on the theory, groups of sensations. The most the first reason proves is that unless certain sensations are experienced or obtainable no sensations of another type are obtainable; if an observer does not or cannot get sense-data of X's eyes being open, then X cannot get the normal visual sensations of his private world. And the fourth reason only shows that two sets of ideas go together, that sensations of sight are supplemented by those of touch, not that they have an external cause; thus we may in a dream feel the fire that we see or see what we write. The fifth point, that genuine sensations may be shared, is stronger—you can see what I see in a way in which you do not dream what I dream, and this suggests some external cause. But the tough-minded objector can still argue that my only evidence that you exist and see what I see is my observation of your actions or my hearing of your utterances, i.e. further observations of mine, and so I have still not crossed the barrier of sensations. The second and third reasons are also unconvincing. Involuntariness or obtrusion is no criterion of external reality, for some mental imagery, many thoughts, and all dreams and hallucinations, come to us involuntarily and are not summoned up at will. Nor is occurrence with pain a good test, for it is not applicable to the great majority of genuine sensations, which occur without pain, and pain may attend hallucinations or nightmares, e.g. in cases of 'phantom limbs' and psychic illness. Hence the concurrent reasons fail to prove that certain sensations have an external cause; alternative explanations are always possible.

3. THE THEORY AS THE BEST HYPOTHESIS

Although it is difficult to see how even its Justificatory Inference version can be given a watertight proof, the Representative Theory can and should adopt a different line of defence, arguing simply that the supposition of external causes is the best explanation of the uniformities and sequences of sensations or percepts. It must

therefore be regarded as truly a theory, an explanation of the given facts, not as new facts deduced from them: as such it must be tested by the criteria applicable to theories and explanations, and must be compared in point of plausibility with the possible alternatives.

One such criterion is the successful prediction of new facts or experiences, but, as we have seen, that is a very difficult test for any philosophical theory and cannot always be applied to the more general scientific theories. Other criteria of an explanation thus become of prime importance, namely comprehensiveness, systematic unity and simplicity. The best explanation will cover all the facts, and will include them as part of its systematic whole and not as stray coincidences; it will do this with the smallest number of basic concepts and axioms, with the postulation of the fewest types of entity and without the introduction of *ad hoc* hypotheses to meet awkward discoveries.

Several attempt have been made to defend the Representative Theory on these lines. Thus Professor Montague argues:[1] 'The dualist's contention that the data of his experience are the effects of something beyond his experience is based on the fact that the data of experience do not themselves afford an explanation for their occurrence and behaviour.' Bertrand Russell's attempts to justify the inference from percepts to physical objects in his *Human Knowledge* are probably meant and are certainly best understood this way, while the recent work by the neurologist J. R. Smythies is more explicit in advocating the Representative Theory as the 'best explanation of the world'.[2] These writers differ widely on details, however, and I shall therefore discuss this rehabilitation of the theory in general terms.

The defence means that not only does one give up the fruitless search for a proof of the existence of external objects from the evidence of sensations—something which would make the Representative Theory not a theory but demonstrable fact—but also that the taint of circularity in defensive arguments is avoided. If one were trying to deduce the existence of a public world from premisses about private sensations, then the introduction of arguments from the observations of other persons would be circular in its assumption that there were other persons; but if one's aim is

[1] W. P. Montague, *Ways of Knowing*, p. 258.
[2] *Analysis of Perception*, p. 35.

to provide the simplest and most convincing explanation of the occurrence of those sensations, then it is legitimate to include as part of the explanation the hypothesis that what we take to be utterances of other people are in fact just that, and to build on this.

The Representative Theory is thus offered as an attempt to improve on ordinary notions or 'theories' of perception and to avoid their inconsistencies. A common criticism of its claim to be the most plausible hypothesis is that it is difficult to see how, if we were aware only of private ideas, the hypothesis that they had external causes would ever occur to us. This criticism has force against the Actual Inference view with its assumption that we start with sensations perceived as private, but it hardly holds against this present defence if, like the Justificatory Inference approach, it assumes from the start that we perceive our in fact private percepts as external, and if it suggests that this is explained by their causation from without and by the general tendency to locate sensations at their approximate origin. The theory must nevertheless challenge the widespread assumption that colours, shapes, sounds and so on are external; it must point to the physiological data and the occurrence of dreams, hallucinations and perceptual relativity, and must claim that the best, in fact the only, explanation of all these is that what we treat as external are only externally caused private sensations and percepts.

Similarly the danger of self-refutation is apparently avoided, for though the final statement of the theory involves modification of the original conception of the physiological observation on which the first stages depend, it does not undermine it. This observation cannot on the theory be regarded as direct awareness of a part cause of the subject's perception since it likewise involves a causal chain, but it can be claimed that the best explanation of the data it gives and of their correlation with experiences of the percipient subject is that the percepts we are directly aware of do reproduce the structure and primary qualities of their external causes. In this way observation of the sense organs of a percipient subject, though strictly only direct awareness of percepts caused by them, does give sufficient essential information about them to support the evidence of physiological transmission.

Rehabilitation of the theory thus involves the claim that science, by correlating percepts, can discover much about the real nature of their external causes. This has in fact always been an integral part

of the theory, and one can but suppose that the failure of its earlier adherents to realize the epistemological difficulties of their version was due to a robust faith in the validating power of science. Very often this faith has gone further than our present supposition that, granted there are external causes of our percepts, science can be held to discover their basic nature; it has been also supposed that it can justify the inference from private data to public physical objects and can show that though our observation is limited to awareness of private data nevertheless such objects exist. Science, it is thought, stands or falls with this inference and science must be true because of its very success. The effective development of the atomic bomb and other devices could only have been achieved on the basis of a theory about the ultimate constituents of matter that was largely correct; but such a theory cannot be isolated from the rest of science, which forms one interlocking system guaranteeing both the existence of external objects and the limitation of our direct awareness to private data.

There are two difficulties in this wider appeal to science. The first is that practical success is no guarantee of theoretical accuracy. One may succeed by accident or for the wrong reasons or on the basis of incorrect theory, just as astronomers calculated and sailors navigated successfully for years on the basis of the Ptolemaic Theory; and even today Newton and Euclid are of more practical value than Einstein. And there are various rivals to the Representative Theory which also claim to give the best explanation of the world and to account for the success of science on other grounds.

One might argue, for example, that the success of science is simply due to scientists' having discovered the general laws linking perceptions and the rules for predicting them. 'Matter', 'atoms' and 'electrons' are therefore at best only useful co-ordinating concepts, devices to help us predict further sense experiences; there is no need to suppose that they stand for anything real, indeed the only realities are the sense-data to be co-ordinated. The difficulty of conceiving the nature of electrons and similar scientific entities has made this kind of explanation popular today among scientists and philosophers of science. They claim that physics should, in the light of present advances, be regarded not 'as a study of the nature of the external world' but 'as an attempt to find rational relations between elements of our experience'.

'When they are expressed as characteristics of a world existing outside us and independently of us (which causes our experience by its impact on our sense organs), these discoveries require such a world to have contradictory properties.'[1] This view is in fact the Phenomenalist one, but defenders of the Representative Theory on scientific grounds would have to show that it was a less satisfactory hypothesis than theirs.

A rival explanation on Kantian lines might also be attempted. The Phenomenalist explanation held that, whereas the ideas or sensations are private and their quality subjective, nevertheless the order of their sequences and coexistence was objective and could be discovered by science and so explained their successful predictions. But the Kantian one would go further and claim that this order also was subjective, was a character of our private worlds of ideas only and not of external reality. The mind imposes its own forms of synthesis on the unorganized representations that it receives; thus the spatial and temporal relations of the world as perceived are all due to the knowing mind, as are its categories, e.g. the apparent division into subject and attribute, cause and effect. Hence the success of science is understandable, almost inevitable, for it amounts merely to discovering the way in which sensations are organized by our minds. Its laws seem to be objective and public and so be knowledge of the external world which causes our ideas; but this is illusion in that these causes are unknown and unknowable. The laws are only objective for us, revealing the kind of order that the human mind must impose on the raw material of sensation. Thus again defence of the Representative Theory must include reasons for preferring it to these alternatives.

Secondly, it is no part of science to put forward its results as correlations of private sense-data and to argue from them to the the existence of public physical objects as their causes; rather it is an attempt to correlate observations and experiments on public objects and to argue from these to the real nature of the objects or to the laws explaining their behaviour. It thus accepts as implicit premisses, that there are public objects to be observed, measured and experimented on, and that different persons can observe and measure the same object, so that their results confirm each other.

[1] H. Dingle in *The Listener*, November 18, 1948, cf. his article in *Nature*, 1951, p. 630.

In this way it begs the fundamental question at issue—how if we are aware only of private ideas or sense-data can we justifiably infer that there are external objects?— and can hardly be used to answer it. If the Representative Theory is to be regarded as a hyothesis to explain the course of our sensations, confirmation of this part of it must be sought rather in the various communications with other persons and the multifarious activities of social life, which are prior to scientific experiment and hypothesis.

We must therefore divide our assessment of the theory into two parts, considering first the pre-scientific belief in the existence of public external objects, and secondly the claims of science to discover the nature of these objects, in particular the claim that they consist of primary qualities only, the secondary ones being purely subjective.

4. EXTERNAL CAUSES

For the first part then of this double justification the Representative Theory must be held to claim that the best, simplest and most coherent explanation of the course of our sense-data is that they are actually caused by the public and persistent external objects to which they seem to belong. And for this Locke's 'concurrent reasons' take on a new importance as typical cases of the kind of pattern of sense-data which is best explained in this way. The first of these reasons only showed that unless one group of sense-data is obtainable another does not occur. The second of these groups consists of general visual experiences of a percipient P, and the first may be expanded to include sensations of the opthalmologist X normally taken to be due to the proper functioning of P's eye and sensations of a third observer Z which would normally be regarded as data of P's eye being open. Now granted that P, X and Z are only aware each of his own private sensations, this correlation between them is all that is proved; it is not demonstrably due to causal relations between P's eye (as a material object, not simply a group of sense-data) and the persons concerned. But the most plausible explanation of the correlations is that the data of X and Z are caused by P's eye, a public material object which also in a different way enables P to have data caused by other external objects. A detailed justification of this would be lengthy, but we may refer for support to the attempt by Price to show how, starting from private sense-data, a percipient could reasonably conclude that

they were generated by sense organs.[1] This part of his work could well be taken over by this defence of the Representative Theory, despite disagreements on other points.

The second of Locke's reasons would be simpler to restate: just the claim that the best explanation of the involuntariness and obtrusion of sensations is that they are externally caused. There would be some weakness about thoughts, but the obtrusiveness of dreams and imagery could be put down to their being caused outside the mind, though in the brain; they are caused within the body because not shared with other persons, whereas the obtrusive sensations are more plausibly due to external objects because very similar sensations may simultaneously obtrude on other persons. The third reason can hardly be improved much, but the fourth is strengthened in that the simplest explanation of the way ideas of sight and touch go together in many situations is that they there have a common external cause.

Even so Locke is hardly adequate; he scarcely appreciates the most cogent reason, namely that very often closely similar sense-experiences are simultaneously enjoyed by several people; we have already had to introduce this to support the second of his reasons, but it deserves to stand on its own. The theory must point to the apparent publicity of sense-data, to the way people can see, hear or feel the same object, and argue that this is best explained by there being a common external cause of the various private sense-data. A special case of this is the possibility of communicating with each other about the data thus obtained; Locke hints at this, the example of writing, without realizing its importance.

To show that the Representative Theory gives the best explanation of these correlations of data (granted *pace* common sense that they are private data), we must compare it with rivals. One of these is solipsism, the view that only one's own stream of ideas or sensations exists. This has the basic weakness that the only reason anyone could have for rejecting the almost irresistible common-sense assumption that we are aware of other persons and public objects is that the evidence of physiology and hallucinations shows that such awareness is really only of sensations; but such evidence rests almost entirely on the evidence of other people, e.g. of neurologists or, in the case of the more spectacular hallucinations, those who have had the experience. Furthermore the sequence of

[1] *Perception*, Ch. X.

experiences involved in what would ordinarily be described as being given information by another person and then verifying it for oneself is not easy to explain on solipsistic lines; one would have to suppose that one only dreamt or imagined that there was another person, and this would amount to denying the distinction between dreaming (or imagining) and reality, with the resultant difficulty of explaining away the tests and differences on which the distinction is normally based (e.g. the continuity of causal law between two waking states but not between two dream states). All this would mean a loss in simplicity and coherence. In fact, of course, no one believes solipsism is satisfactory, and philosophers would not give it a moment's thought were it not for the difficulty of conclusively refuting it, as opposed to showing that it is not plausible.

The next alternative, Phenomenalism, has already been discussed at length and its special application to science will be considered briefly in the next section, so it is only necessary here to mention its points of inferiority to the Representative Theory.

They arise out of the apparent publicity and persistence of physical objects and the continuance of their causal properties even when unobserved. The types of situation involved, e.g. our leaving the room for a minute and returning to see the table and chair just as before, the support of the floor by unseen joists, the deflection of the compass by the magnet in the pocket, or the operation of the sense organs and nerves, may perhaps all be described in terms of correlations of sense-data, though this would be difficult and complex; but to suppose that these correlated sense-data alone exist creates many paradoxes, as we have seen, and is a much less simple and plausible explanation than the supposition of the Representative Theory that the correlated data are due to continuing, public and causally efficacious physical objects.

We may point the contrast by taking an example of communication and exchange with other persons, namely when I go into a shop to buy a pound of sausages, hand over the money and receive the goods. On the Representative Theory the series of sense-data I and the shopkeeper get here is simply explained by supposing that material objects, public and external to our minds (viz. sausages and money), pass from one material object (person's body) to another, and in doing so affect our sense organs and cause the sense-data concerned. But if there are only persons and sense-

data (or worse still only sense-data) and no material things, one is at a loss to explain the sequence of experiences I and the shopkeeper have during the transaction. That he and I should at the same time get a sequence of sense-data apparently of the interchange of objects, yet nothing in fact be exchanged, seems to be a strange and unexplained coincidence. Why should he get sense-data of receiving coins from me, indeed what am I doing in the shop at all, if I do not really hand over coins to him in exchange for goods, but I merely get sense-data of doing so? Why does he not get data of receiving the money if I only dream or imagine giving it to him? Phenomenalism seems quite incoherent on this and the only possible explanation of the situation seems to be that actual physical objects do change hands.

As to the complaint that the Representative Theory has to postulate unobservables, in that we are not directly aware of its physical objects, many of its rivals have to do the same. Berkeley has to bring in God as a *deus ex machina* to save him from the paradox of the continual annihilation and re-creation of objects, the Sensibilist postulates unsensed sense-data whose existence cannot be tested by observation, while the paradoxical possible sense-data of the Factual Phenomenalist are no better. If the Linguistic Phenomenalist avoids these postulations it is only at the cost of other paradoxes and implausibilities.

The main force of the Kantian alternative is directed against the second or scientific part of the Representative Theory; so far as the belief in the existence of physical objects is concerned, it seems to get the worst of both worlds. In so far as it regards material things as phenomenal, as constructs from our experiences, it is open to the objections levelled against Phenomenalism, quite apart from the difficulty of supposing an Actual Synthesis; and in so far as it regards them as noumenal, as the ultimate causes of our representations, they are mere unknown things-in-themselves, and it is open to the charge of postulating unobserved causes, without the advantages of crediting these causes with being, so far as primary qualities at least are concerned, the objects they seem to be.

5. PRIMARY AND SECONDARY QUALITIES

We may accept for the present that the Representative Theory is more plausible than its traditional rivals in supposing that our

sensations are caused by the external objects to which they seem to belong; the second part of its justification as the best hypothesis rests on the claim that by science we can discover the fundamental characteristics of these causes. Historically this is bound up with the distinction of Primary and Secondary Qualities, viz. that the perceived qualities of sensations or percepts are of two kinds: the primary ones like shape, size, number and motion, which characterize the external causes as well as percepts; and the secondary ones like colours, sounds, smells and warmth, which are purely subjective and characterize only our experiences: their causes in objects are quite unlike them and possess only primary qualities. (This way of putting it is a little loose but is far more convenient than reserving the term 'quality' for properties of the external objects alone; that was Locke's way, but it means that one has to refer to colours as 'representations of secondary qualities', which is pedantic and almost impossible to keep up in practice.)

The main arguments for this distinction are:

(i) That science can explain and describe the physical world solely in terms of primary qualities, therefore only they belong to it. The objection may be made that this mistakenly identifies science with physics, for colour and smell are important in biology; but what is important there is strictly the perception of colour or smell as affecting behaviour, and so does not touch the argument which concerns the real nature of physical objects. The main objection is that the science of one's day is not final and its account may not be the whole truth; so even if secondary qualities have no place in science they may still be real properties of matter.

(ii) Neurologists claim that there is nothing in the conduction of nerve impulses from sense organ to brain that could correspond to or transmit qualities such as colour, warmth or sound. As the nerves from the different sense organs are all similar, the only variables seem spatial (the different pathways and cortical destinations) and temporal (the frequency of the impulses, which anyhow seems only a mark of intensity). Thus though the spatial patterns in the cortex, and the sensations they cause, can be regarded as reproductions, if distorted ones, of the spatial patterns of the stimulus, secondary qualities cannot have been transmitted and must somehow arise out of the excitation of the cortex: it is unlikely, therefore, that they exist in the inorganic world outside the brain. One might object that sound can be transmitted by

radio and colours by television without travelling as such through the air or along the aerial: they are converted into electrical impulses at the transmitter and converted back at the receiver. So the fact that colours and sounds do not travel along the nerves as such is no proof they are not transmitted; they may be converted into spatio-temporal patterns of impulses at the sense organ and reconverted at the brain.

Perhaps the real neurological argument is that, so far as we can judge, it is the physical correlates of colour, warmth and sound which activate the sense organs. The ear responds to different frequencies of sound waves, not to pitches and tones, and the retina to different frequencies of light waves, not to colours. But it would be difficult to prove this: and no waves are involved in taste and smell; there seems no evidence that the small particles which there activate the sense organs do not possess the properties of taste and smell.

In general this second argument reduces to one like the first; it claims that the causation of perception, as well as the nature of physical objects, is adequately explained in terms of primary qualities alone. This is no *proof* that secondary qualities do not characterize physical objects; but it suggests that there is no need to suppose that they do, and that account of the physical world which postulates the smallest range of fundamental properties is presumably simplest and best.

(iii) The most important argument for the distinction is the relativity one. The secondary qualities of our sensations are affected by the state of our sense organs and nervous system, by the temperature of our body, by our position with respect to the external object and by the medium separating us from it. As they thus vary according to conditions quite external to the object they cannot be intrinsic properties of it. I suggested in Chapter II that all this meant was that the accuracy of our perception of the object varied: and though what was said there is true as far as it goes and is adequate against theories like the Sense-datum Theory, it can hardly survive as a final explanation once the scientific data of the causal process have been introduced. A comprehensive theory must not only take this process into account but must explain how this variability in the quality and accuracy of perception comes about; and that cannot be done on simple common-sense lines. I shall offer my own explanation later, but here need

only point out that the Representative Theory is offering a plausible one. If the physiological evidence is to be explained by supposing we perceive percepts which are caused by external objects, then these so-called variations in the perception of external objects are variations in the percepts or representations caused by them: and these variations in turn are due to the way the conditions mentioned affect the brain activity that is the immediate cause of the representations. This means that the old argument from relativity is not really an independent one: it is secondary to the causal argument that claims that both primary and secondary qualities are in the first instance, i.e. *qua* perceived, qualities of percepts.

What then remains of the distinction? Simply that the primary qualities also characterize physical objects—the table is square as, in favourable circumstances, is the percept or representation of it; but it is not brown in the sense that it possesses what one can only call the sensuous quality of brownness; it can only be called brown in the sense of causing a representation of that nature. This claim can hardly be established by the relativity or variability of perception; such considerations are subordinate to the causal argument, and, as Berkeley pointed out, perceived shape, size and motion vary as much as colour or warmth. On these grounds then both types of quality are alike and are equally subjective. The essential point, however, is the distinction between perceived and measured shape, size, or motion. The former, including but not limited to 'apparent' shape, size, etc., are variable and characterize percepts as do colours. But it is the real measured qualities that are the concern of science; they are what it attributes to physical objects and they do not vary with the percipient's health or position. The penny may look elliptical but its measured shape is round—any two diameters at right angles to each other are equal in length and not of differing lengths as in an ellipse. Similarly one tree may look taller than another, but their measured height may be the same and does not vary with distance. Motion is in some ways relative, but with respect to a given frame of reference it is objectively determinable. This criterion of measurement gives us more invariant qualities than Locke envisaged, e.g. measured temperature is objective while felt warmth is not; but once the distinction of qualities is accepted, the extent of the 'primary' or rather 'fundamental' list will be influenced by scientific theory, and temperature would probably be reduced to mass and motion.

The relativity argument should therefore be recast. All immediately perceived or 'sensible' qualities are relative to the percipient and hence subjective, characterizing percepts only; this being confirmed by consideration of the causal process. Measured or scientific qualities are invariant and thus are objective intrinsic properties of physical objects. Also there is sufficient similarity between certain sensible qualities (size, shape, motion and number at least) and their counterparts and causes in scientific properties for them to be distinguished from others like colours or sounds. We may still call the first group 'primary' and the other 'secondary' if the reinterpretation is realized.

Before considering further the notion of measurement on which this depends, one might note that this amended distinction is still open to, though may survive, Berkeley's other main criticisms of Locke.[1] They were (i) that an idea can only be like an idea—i.e. that a sensible quality cannot resemble a scientific property of matter; and (ii) that matter consisting only of primary or scientific properties is inconceivable. The first seems to run counter to the obvious fact that percepts have shape and spatial properties; but it had strong *ad hominen* force against the older Representative Theory which claimed that mind was unextended and so had difficulty in explaining how mental percepts could have spatial properties. Modern versions like those of Russell and Smythies avoid that difficulty by allowing mind extension in some space other than physical space.[2] As to the second objection, whether we can conceive anything in Berkeley's sense of 'conceive', namely 'imagine' or 'picture to oneself', is a matter of past experience and powers of imagination, and is relative to what we can perceive. Thus one can allow to Berkeley that we could not immediately perceive or imagine ourselves perceiving anything which possessed only scientific properties and no sensible or secondary ones, but this in fact analytic statement is quite irrelevant to whether anything exists possessing only intrinsic scientific properties. Many things are commonplace in science which cannot be pictured or imagined, e.g. the dual wave/particle behaviour of electrons, the working of a band-pass filter, or four or n-dimensional manifolds.

An examination of the notion of measurement suggests that the basic distinction is between the sensible qualities, which seem to

[1] Berkeley, *Principles of Human Knowledge*, viii. ff.

[2] But see pp. 178 ff. below.

characterize an object as viewed in a single perceptual act, and the properties which are ascertained as the result of co-ordinating a series of perceptions. Thus colour, taste, smell and apparent shape are each the content of a single perceptual act and are revealed by one; they are therefore particularly liable to distortion introduced by the health or position of the percipient. But measured size, shape and speed are discovered by reading meters or noting the coincidence of the ends of objects with marks on measuring rods, and by calculating from a number of such readings. In this series of operations the effect of distorting factors is cut to a minimum; the variations in a reading due to vagaries of the reader are within a small range, and checks by several persons can be made and an average taken of their results; nor are the calculations affected by sensory factors. Hence by a roundabout method which gives less scope for major error and more scope for checks, objective agreed answers can be obtained which are not open to attack by the traditional relativity argument.

Measurement is still a perceptual process, however, and reliance on it may seem to raise again the old bogy of the Representative Theory; perhaps in measurement, one is still confined to the private world of sensations; one is merely getting the percept of the coincidence of certain lines, not seeing the coincidence of external objects. But it must be remembered that at this stage the existence of external causes of our sensations and percepts has been accepted as the result of the first part of the justification. Hence it must be maintained that the simplest explanation of the percept of coinciding lines or objects is that it is caused by actually coinciding objects, especially when the senses confirm each other. Thus one may place the end of the ruler at the end of the object, see them coincide, bring up one's hand and then feel that they coincide. *Ex hypothesi* one's direct awareness here is only of a series of data externally caused; but the best explanation of the nature and sequence of the data is that they reproduce in essentials, and are caused by, actually coinciding objects.

It has been suggested that measurement is not the only way to discover objective properties, and that one might adopt a method akin to the gradual-transition series and spatial synthesis proposed by Price for discovering nuclear sense-data. Thus if one considers all the various circular and elliptical sense-data obtainable from a penny and arranges them in order, the circle seems to be

the central one from which all the others diverge; hence it is the real or 'proper' shape of the penny. This would be another and supporting method of co-ordinating single perceptions, but measurement of diameters of the penny would seem to be a primary and more reliable way of establishing its real shape. For the observed nuclear 'proper' shape is not the actual shape of the object but is the sense-datum caused by and corresponding to it (assuming the Representative Theory, not Price's); that they are similar may only be true of shape and size, and one needs the support of general scientific theory or of measurement to guarantee the similarity. Thus one can apply Price's method to colour and arrive at the nuclear or standard colour, but the scientific counterpart and cause of that is something very different—a wave frequency.

The main aim of the second part of the justification of the Representative Theory is not, however, the defence of the distinction of primary and secondary qualities, but the support of the claim that science can discover real properties of objects. The defence seemed necessary here not only because the distinction is normally made part of the theory but in order to show how measurement and co-ordination of perceptions can surmount the relativity of perception, so far as the primary qualities at least are concerned. In support of the more general claim it is appropriate here to introduce the argument from the predictive success of science. As science progresses it cannot advance by measurement and calculation alone, but develops hypotheses and far-reaching theories; but the success of the predictions based on these must be regarded as verifying them and so confirming and extending our knowledge of objects. This success cannot reasonably be explained in any other way, and so the Representative Theory can claim that, though in a single perceptual act we are limited in direct awareness to sensations or percepts, nevertheless science, by measurement and experiment, by framing and testing hypotheses, has succeeded in discovering the essential properties of the external causes.

This argument was out of place before, but can be used now that the existence of external material objects has been justified on pre-scientific grounds. A little more remains to be said, however, about alternative philosophical explanations of this success. The Phenomenalist one has been largely disposed of at a pre-scientific

level; but a truncated form of it can survive as an account of atomic science; it might still be held that, though there are macroscopic physical objects, unobservable postulated entities like electrons must be regarded as coordinating concepts not real existents, because they are in principle unobservable and contradictory properties are attributed to them. But that involves a very specialized controversy and we can do little but note that the non-Phenomenalist view of their reality is held also by many physicists.[1] It is a question more of what science really claims than of whether its claims are in general justified, and so whichever answer is the correct one it will involve only a qualification, not a refutation, of the Representative Theory. The essentials of the latter still remain in the acceptance of the claim that there are external physical objects to cause our perceptions and that their macroscopic properties at least can be readily and reliably discovered by science.

More dangerous to this position is the Kantian thesis, that the causal relations established by experimental methods and the spatial ones revealed by measurement and calculation are properties of phenomena only, and that they do not characterize the ultimate and unknowable causes of our experiences, the things-in-themselves.

The best way to deal with this view is to attack the arguments on which it is based. It rests ultimately on the belief that in mathematics and the basic principles of science we have knowledge which is *a priori*, and so necessarily and universally true, but which is not simply analytic or logically certain. Kant asks how this is possible, how we know that all experience will conform to the principles of mathematics and science. He answers that it is because these principles are features of the way we organize the data of experience—otherwise they would not be inseparable from our observing it; but since they are thus contributed by us there is no reason to suppose they characterize the causes of the data of experience, the unknown external things-in-themselves. If then we can show that these mathematical and scientific principles are not necessary and universal, the basic claim of the Kantian thesis fails; and the Representative Theory could argue that this is possible. Thus spatial relations do not necessarily or universally conform to Euclidean geometry as Kant thought they did:[2] not

[1] e.g. Max Born in *Philosophical Quarterly*, 1953, pp. 139 ff.

[2] cf. my paper, 'Mathematics and Truth', *Philosophical Quarterly*, 1953.

necessarily, because there are alternative non-Euclidean geometries which might conceivably hold good of our space, and not universally, because scientists claim that neither interstellar space nor the spatial relations of protons and electrons are Euclidean. There is also reason to doubt the necessary and universal applicability in science of two categories Kant stressed as *a priori* and contributed by us. One is that of causation, expressible in the principle that every event has a cause. How far this holds good at the sub-atomic level is a subject of dispute among physicists, some holding that statistical laws are fundamental; but at least the fact that it can be seriously entertained and argued that the principle of causality does not hold there shows that it cannot be part of the way we inevitably organize our experience—an alternative is conceivable. The modern stress on probability and statistical laws was not envisaged at all by Kant, and is a sign that it is the facts that force us to amend our categories and concepts to conform to them—not *vice versa.* To attempt to force the material of experience to conform to our mental mould is a bad habit rather than unavoidable necessity. Much the same applies to the category of substance: the problem of the duality of waves and particles, for example, suggests that the old category of substance may be inadequate to the discoveries of modern physics; we seem forced to new ways of thought that should be neither necessary nor possible if Kant is right.

This is unavoidably a mere sketch of an answer to Kant; and I may mention even more briefly that the Representative Theory could make various additional counter-attacks: it could dwell on the notorious difficulties in the Kantian position, e.g. the mysterious nature of the thing-in-itself or of the human self on his view. Indeed, apart from the dubiety of its basic assumptions, the working out of the Kantian doctrine involves the postulation of so many unobservables as to make it a less simple and plausible explanation than the Representative Theory.

6. ITS REJECTION AS AN EXPLANATORY HYPOTHESIS

The Representative Theory can thus be rehabilitated to a considerable extent and can be defended against certain traditional alternatives. Nevertheless its new guise as a hypothesis to explain the nature and order of our sense experiences lays it open to

criticism from a different quarter and to the charge of being itself unnecessarily complicated, in fact incoherent, as an explanation.

Note first how it differs from the actual assumptions which we unthinkingly make and which I outlined in Chapter I. We take it for granted that what we perceive are external objects; indeed not only are the cats, cabbages and chairs we are aware of taken to be public and external, but so are sounds and smells. Yet the Representative Theory still apparently has to maintain that this is an illusion. We are aware only of sensations or percepts that are in the mind not outside the body, even though it is a reasonable hypothesis to suppose that they are the effects of external objects resembling them in certain ways. But why then are we so chronically deluded, and even when the error is pointed out to us why do we incorrigibly cling to the belief that we are perceiving the external table itself, not just its private effects on us? The Representative Theory would be a better hypothesis if it could give a convincing explanation of this, and a much better one if it could allow us to be partially or wholly right.

Furthermore this claim to be the best hypothesis was advanced as a way of saving the conclusion of the usual version of the theory, 'we perceive only private ideas or percepts', from epistemological disaster. In reply to a common objection it showed how one could proceed from that conclusion to the belief that ideas or percepts have external causes whose nature science can discover by methods other than simple perception. But this is only valid granted that conclusion or as an *ad hominem* argument against philosophies like Phenomenalism which claim as given merely sequences of sense-data. It is not therefore clear that it escapes the self-refutation charge, namely that the conclusion denies both what it set out to explain, our perception of external objects, and its premiss, that we observe certain facts about sense organs. One might argue that if we did not perceive external objects, including nerves and sense organs, then the theory could never get started and if it did it would defeat its own purpose. For the 'facts' of the physiological causation of perception which it sets out to explain would themselves dissolve into sensations and hypotheses.

Hence if the theory is to survive, it must maintain that in some way we perceive or observe external objects as well as the sensations or percepts that they cause; and this observation of external objects must be supposed to be more than making inferences or

hypotheses from the perception of private data. The best way to accommodate the two perceptions would be to regard the one as the means to the other. The way we perceive public objects, i.e. get to know of their presence and of their characteristics, is by perceiving private ideas or percepts caused by them and representing them. The double use of the word 'perceive' is awkward, but this could be avoided by synonyms 'observe' or 'aware of'. The amended theory would not be just juggling with words: it could claim to fit the facts. If I seem to be perceiving a tomato, i.e. am aware of a percept which I take to be or to be caused by a tomato, and the best hypothesis to explain my experience is that there is an actual tomato there causing it and resembling the percept in primary qualities, then surely I am perceiving the tomato; I am ascertaining its existence before me and its essential properties, even if I do not realize that I am doing so only indirectly by means of a representation. At least a possible sense has been given to 'perception of external objects', and the Representative Theory is now a better hypothesis for allowing the kernel at least of the common-sense assumption, as indeed its own starting point requires it should. Thus even if they might disagree with this suggested linkage, the best modern versions of the Representative Theory carefully and explicitly distinguish these two kinds of perceiving or awareness.

But this seems to lay the theory open to the very criticisms, of duplicating seeing and supposing that we see sensations, which Ryle levelled against the Sense-datum Theory. In an attempt to explain our perception of the world it offers two kinds of perceiving: the original perception of objects it set out to explain and a new perception of sensations or percepts caused by external objects. This duplication seriously weakens the claim to simplicity and coherence in explanation for we are offered two to account for one. This leads to a dilemma: either this perception of percepts is similar to the perception of external objects, in which case it must contain within it an inner perception of inner percepts, and so *ad infinitum*; or else it must be a radically different kind of awareness in not requiring causal process and inner awareness. This is the alternative usually adopted, but then this new kind of perception needs explanation. How does it occur without causal process and awareness of its effects? Why don't we need eyes to see percepts?

This dilemma is particularly pointed because seeing (or 'having' or 'being aware of') percepts seems in other respects just like seeing physical objects, especially as that is commonly conceived. Thus it is apparently of a transitive act/object nature like perceiving tables or tomatoes, percepts being regarded as distinct private objects or existents; it is in fact assumed to be an immediate confrontation with the percept, a direct awareness of it. It is as though, having rejected supposed immediate confrontation with physical objects on account of the causal process, the theory reintroduces it at the end of the process with different, private objects. But what is the evidence for it there? It would be illegitimate to rely on the fact that perceiving seems to the percipient to be immediate and direct in this way, for to him it seems to be direct awareness of public external objects, not of private ones.

Furthermore the very supposition of a host of private objects is a serious weakness in any theory which claims to be the simplest in a technical sense, i.e. to explain phenomena with the least postulation of types or orders of entity. And once these private percepts have been postulated there arises the problem of where to put them—there is no room for them in the head or in physical space.

Some of these points have been anticipated and turned by a traditional thesis which is integral to the theory but which in turn greatly reduces its value as an explanation. This is that percepts are mental; they are objects in the mind not in physical space, and the seeing of them is mental also, it is perception by the mind in the mind. Mental awareness is a direct intuitive confrontation which does not need material intermediaries such as sense organs. But this is a queer ending for what set out to be a scientific explanation of the facts. In the first place it seems to take us out of the sphere of natural science and of publicly observable entities and processes. For what is the evidence for this novel mental seeing? Neither the private world of sensations, nor the mind as the perceiver of it, not yet its perceiving of it, can be observed as part of the physiological causal chain. This mental seeing cannot be inferred as a further but so far unobserved link in the chain because it is something *ex hypothesi* quite different from all the other material and publicly observable links. It may be said that the evidence comes from the percipient—we stimulate the brain and ask the patient for his sensations. But then his answer is

evidence only of the quality of his experience, not of its ontological or epistemological status. He can say that he sees a red glow or flashing lights or hears a tinkling sound, but his experience is not labelled 'private and mental, sensation only'. And brain stimulation is a special case; in perception generally, even in hallucination, the percipient is convinced that he is seeing external objects and so his evidence contradicts the theory.

Secondly, 'mind' and 'mental awareness' tell us so little that we are in effect being offered an explanation *per obscurius*. What is mind and how does it see directly? How is it related to the person and his body? The hypothesis raises more difficulties than it solves, and we must investigate the various theories of mind to elucidate it, let alone assess its value as an explanation.

Lastly, despite its introduction of 'mind', the theory does not deal adequately with the non-sensory mental activities that occur in perceiving. This is most clearly shown in the case of misperception, but is also illustrated by various psychological phenomena, such as attention. Consider a situation where the object present is a wax imitation of a tomato, and observer A takes it to be a tomato while observer B, next to him, takes it to be a piece of wax. The theory may say that B sees the wax by seeing a percept caused by and representing it, but this cannot be said of A for he 'sees' a tomato. And how is A's error to be explained? Not by difference in the percept or sense-data directly seen, for there is no reason to suppose that they differ for A and B as they would if A were colour-blind or were seeing the object from a long way off; the wax presumably causes similar activity in the sensory areas of the brain, and similar corresponding mental effects, in both observers. There would then seem to be two suggestions: the difference may lie in the way the percept or datum is seen—A does not see it properly, misperceives it—, or it may be that some interpretation or judgment or taking-for-granted is necessary for perceiving objects. The first would destroy the assumption of a direct seeing of percepts—if the seeing varies so much it cannot be an immediate confrontation. Furthermore we wish to know how this mental seeing can vary so much; it can hardly be explained in the way varying perspectival distortion is explained, as being due to differing brain activity which causes different mental data. On the second suggestion misperception is taking the percept caused by object X to be, or be caused by, object Y. All perception must be regarded as

taking for granted or judging that a directly seen percept is, or is caused by, a certain physical object, and I allowed for this in my initial account of the two types of seeing. But the problem for the theory then is how to explain this without being reduced to an unplausible Actual Inference view, which would treat seeing external objects as merely inferring from or interpreting a true inner seeing of percepts.

Similar difficulties arise over other psychological factors: we have already mentioned the dilemma of attention in Chapter III, and it would seem to apply also to the Representative Theory and suggest that the seeing of percepts must be variable in character and not direct confrontation; and stereoscopic vision, object constancy and the effects of past experience on perception all raise similar questions. I shall discuss these points in Chapters VIII and IX, and it is a pity that the recent exponents of the Representative Theory, especially the neurologists, say so little about them.

We may illustrate these objections to the modified Representative Theory by considering their application to a recent version put forward by J. R. Smythies in his *Analysis of Perception*. One might call it the 'Television Version' for he quotes with approval, and tries to justify, the dictum of Grey Walter that 'the televisual system behaves very much like the neuro-visual one'. Seventeenth-century versions of the Representative Theory had to be content with simple analogies, that the mind perceiving ideas was like the king in his audience chamber; the rise of the cinema suggested that sensing sense-data was like seeing a private film of the outside world, and now there is television. However Smythies claims that it is not just an analogy and that it would not be misleading to take it literally (p. 41). Since the complex patterns one sees on looking at a flashing light in a stroboscope are similar to those which appear on a T.V. screen when the light is being televised, it is argued that they are produced in each case by a scanning mechanism, and that the private visual field of sense-data is constructed by such a mechanism in our brain or retina, just as the picture on the T.V. set is constructed by the electron beam travelling regularly over the screen (pp. 68 ff.). ('Scanning' in these contexts does not mean or entail 'seeing'; it means 'travelling regularly over an area, scene or surface'.)

Now there are various special objections to this version, e.g. that there is no physiological evidence of such mechanism in the

person, that neither the light waves striking the eye nor the resultant nerve impulses seem like a modulated radio wave, that there is nothing like the T.V. camera to scan the seen picture and convert it into impulses that could work the equivalent of the T.V. receiver. (The theory only mentions the latter, but it would surely need: the eye = camera, nerve impulses = radio waves, and brain = receiver and screen — which is even more speculative.) Further, even if there is a scanning mechanism in the brain (the alpha rhythm has been suggested), the simplest hypothesis would not be that seeing an object consists in inner seeing of a picture of that object constructed by a scanning mechanism—which would duplicate seeing—but that it consists in scanning, i.e. having a special impulse travel over, the pattern of brain activity caused by the external object. Furthermore, whereas a T.V. set only reproduces a few of the characteristics of the external object (no colour usually, no smell, taste, touch or warmth), the T.V. reproducer on this theory will have to *add* all these secondary qualities since the outside world has only primary ones.

But it is with the general epistemological objections that we are chiefly concerned here. As on the older Representative Theory we or our minds could directly perceive only ideas, so on this modern version we (or our 'pure egos') can directly observe only the T.V. picture consisting of sense-data which represent the external world which causes them. Hence we are all incorrigibly mistaken in thinking that we directly observe external objects. How then can we know about the latter or justify our observational premisses about sense organs, stroboscopes and television sets? Smythies answers by emphasizing that the existence of external causes is a hypothesis, though one offering 'the best explanation of the world' (p. 35), and by distinguishing between direct and indirect observation:

'We can say that "directly to observe an object or event" is synonymous with "to sense a sense-datum (or examine an image)" and that "indirectly to observe an entity or event" is synonymous with "to perceive a material thing". The causal theory of perception does not then require us to say that physical objects are *unobservable* things-in-themselves. It has only to postulate that physical objects are ontologically distinct from sense-data (are things-in-themselves), and that the relations between sense-data

and physical objects are such that by sensing some sense-data (not hallucinations) we perceive material things and so gain knowledge about the physical world' (pp. 33–4).

If we take this at its face value we have two kinds of observation instead of one—a clear duplication. Moreover how is it that observation (= perception) requires sense organs and scanning mechanisms, while observation (= sensing) does not and is apparently immediate? After all we need eyes to look at a T.V. screen, the same eyes that we need to see the scene being televised if we are present in the studio. So if the analogy were pressed we should need a further T.V. set to enable us to see the images produced by the retina/brain T.V. set, and so on.

To avoid this infinite regress direct observation is made mental, but there is no appreciation of the problems posed by the psychological processes in perceiving and misperceiving. There are some novelties, however. Mind is defined as 'a complex composite of sense-data organized into sense-fields, together with images, thoughts, affects and perhaps a Pure Ego', and is made spatial as sense-data are spatial (p. 28). But it is not thought to be in the same space as physical objects, and three resultant hypotheses, Theories I, IIA and IIB, are offered concerning the relations between minds (including sense-data) and objects. The first is that they have no mutual spatial relation; the last two are elaborate suggestions of higher-dimensional spatial relations between them, and theory IIA involves postulating a system of unsensed psychical entities. Most of the suggestions are so speculative and complex as greatly to weaken the claim to be the best explanation, even assuming one can decide which theory to adopt. Yet the main epistemological difficulty still remains: causal relations are still supposed to hold between physical objects and sense-data, but it is not clear how they can do this. As Smythies says 'The general problem is how may one group of spatio-temporal events affect another group of spatio-temporal events when the members of one group either bear no spatial relations or higher-dimensional spatial relations to members of the other group?' (p. 59). He thinks it may be solved if one can construct an *n*-dimensional physics based on an *n*-dimensional geometry, but he does not attempt the construction. This is very chimerical and I should have thought that all scientifically recognized causal relations hold between entities in the same spatio-temporal system. The idea of

cause in one space and effect in another is a paradoxical novelty; in fact it is usually supposed that cause and effect are spatially continuous within the one space, action at a distance being rejected.

It would be no help to say that we already have an example of such inter-spatial causal relations in the causation of mental images by brain activity; that would pre-judge the question, for the occurrence of mental images is just another instance of the fundamental difficulty of explaining the relations between brain events and our experiences. Indeed it may be that there is no *causal* relationship between sense-data and events in the physical world. There is a causal chain within physical space from external objects to brain activity, but it may extend no further; the sense-data may be aspects in one space of the perceptual activity of the person, activity which in physical space presents the aspect of brain activity. Indeed there is a danger of interpreting 'the space of sense-data' too physically, as though sense-data are different objects, and are analogues of physical objects but in a different physical space or extension; whereas strictly all one can say is that sense-data are *spatially ordered* differently from physical objects, and this may only mean that they are events in ordinary physical space (brain events) as revealed on a different mode of access or observation from perception or scientific observation. I shall suggest a thory on these lines in Chapters VII and X.

Our general conclusion must be then that even in its most plausible forms the Representative or Causal Theory is unsatisfactory. On the credit side it does at least try to explain the puzzling physiological facts, which is more than some philosophical theories have done, and it is the explanation to which generation after generation of investigators are first drawn. To avoid self-refutation it must simply claim to be the best hypothesis to deal with the facts. But it is then unsatisfactory in accusing us all of ineradicable and inexplicable error, and in duplicating the perception of external objects it set out to explain by postulating a second and inner perception of inner objects—one that mysteriously needs no sense organs. It seems forced in fact to use 'mind' and 'mental awareness' as a *refugium ignorantiae* for this second inner awareness, and this not only leaves much unsolved but is really an abandonment of scientific principles, for all the modern sophistication it may acquire.

This last charge raises wider issues, but they must be faced if we are to achieve a theory of perception which will account more satisfactorily for the scientific evidence. As an essential preliminary we must examine and attempt to improve on the current theories of mind, an examination which should also support our criticism of the Representative Theory as an explanation of perception.

CHAPTER SEVEN

MIND AND BODY

I. INTERACTIONISM

The conception of the relation of body and mind presupposed by the Representative Theory is a dualistic one of a type which has often been put forward, but which is chiefly associated with the names of Plato and Descartes. The essential notions seem to be: first that there are two distinct orders of being or substances, the mental and the material. Mind or mental substance is neither perceptible by the senses nor extended in space; it is intelligent and purposive and its essential characteristic is thought, or rather consciousness. The body on the other hand is part of material substance, perceptible and extended; it lacks purpose and consciousness and, at the macroscopic level at least, is governed by rigid laws of cause and effect. Secondly, the person or self is strictly to be identified with mind and to be regarded as a mental substance; each one of us is primarily and in reality a mind or soul, though in some way associated with a body. Hence one can legitimately speak of the mind as the entity that experiences, wills and thinks.

Within this framework, however, there is room for varying views as to the relationship between the self or mind and the associated body. The most extreme view, Parallelism, is that there is no connection between them; the various events in a person's body and in his mental life develop together on parallel courses but do not affect each other; they are like two clocks back to back and kept in time by the divine maker. Then there is the Cartesian view that, though mind and body are essentially distinct substances, so that the mind does not require the body for thought and consciousness nor the body require the mind for its mechanical motions, yet they do interact in perception, imagination and conduct. Looser interaction views have been held, however, in which there has been doubt as to the essential distinctness of the individual mind from the body or from other minds. But there is fairly widespread agreement that the mind is affected by the body or brain in perception and yet can itself think and decide, so that a

person's voluntary actions are due to the direction of his body by his proper self, i.e. his mind.

We may pass over Parallelism as incredible in view of the mass of evidence of the apparent interaction of mind and body, not only in perception and conduct but also in illness and the action of drugs and glands; to explain this away by so strange a divinely imposed harmony is a confession of failure. But Interactionism is very relevant, for the Representative Theory seems to be a statement of half of it in claiming that brain activity causes the mind to perceive its private world of 'ideas' or percepts. Perhaps the two views are not indissolubly linked, for some form of Interactionism seems held by many who would pour scorn on Locke and the Representative Theory. But it is difficult to see how they can avoid the weaknesses of the latter. Some form of the Sense-datum Theory might be put forward, attempting to break out of the private world by denying that these data were purely mental. But it would come to grief as soon as it tried to explain how the brain and mind interacted to cause the awareness of sense-data, for it would have to adopt either the Selective or the Generative Theory, and both are open to grave objection, as we saw in Chapter III. The one has to postulate a fantastic variety of existents while the other either has the same defects as the Representative Theory or is in danger of paradox, indeed incoherence, concerning the nature and category of sense-data. In view however of the popularity of Interactionism I offer some further criticism of it.

First we must ask what is the evidence for supposing that the self or person who thinks and perceives is essentially a mind or mental substance. Perception, for example, only shows a person as a body, a public physical object behaving in various ways, and scientific observation only reveals details of bodily activity. The reply would no doubt be that introspection is the source of evidence: perception and scientific observation are inappropriate, being limited to public objects and events, but we are all aware of ourselves thinking, deciding or imagining, and so have abundant introspective evidence of these private mental activities which can be observed only by the person concerned; I may infer what another person is thinking from his words and expression, but only he can know by direct access what is going on in his mind.

This answer is scarcely adequate. Its weakness is not that this

direct access has been denied by Ryle and others, for they have not done so convincingly; it is rather that by introspection we only have evidence of the occurrence of certain experiences and activities, of ourselves thinking or seeing. There is no revelation of the ontological status of these activities or of the self which performs them. We may see a red glow and be aware that we are seeing it, but we cannot be aware that it is a sensation in the mind, for that is pure theory, a hypothesis to account for the experience of the red glow after certain brain activity. Or we may catch ourselves day-dreaming and find that we were thinking of palm trees on the Riviera or some other material thing. But we are not then introspecting that we were aware of mental images or private mental representations of palm trees; that is not revealed to us, it is a supposition to explain the absence of actual palm trees. Similarly the self that one discovers to be thinking or seeing is not thereby discovered to be an immaterial mental substance. Indeed, to judge from our language, we suppose that it is persons, you or I or John Smith, who think and perceive as well as eat, and that these same persons can be seen or observed by the senses. Thus 'I saw you yesterday. You were walking along High Street day-dreaming as usual', but we would find it odd to say 'my mind saw you' or 'I didn't really see you, I only saw your body walking'. These linguistic preferences of course carry no guarantee of philosophical truth, but they do at least show, that despite centuries of effort by philosophers and theologians to persuade us that we are really minds lodged in bodies, the common-sense assumption is still that the same person who walks and thinks can be publicly observed, even if many of his activities, including the thinking, can only be inferred by others.

But whether it has its roots in common sense or not, there is in all this an alternative to dualism, a suggestion that the person is a unity, an observable, self-conscious, self-determining organism, not a compound of two disparate substances. And if we set this against dualism we see that introspection does not reveal which is correct or warrant one rather than the other. I am aware of myself thinking or imagining, but, for all this awareness can tell me, 'myself' may be a mental substance lodged in a body or may equally be a self-conscious physical organism. It is difficult to put this point without begging the question, for the use of 'mental' and 'physical' and similar terms in philosophical contexts tends

to imply dualism; the terms can ordinarily be used in a neutral way, e.g. 'mental arithmetic' or 'physical training', to classify types of activity, but as soon as the distinction is applied to actual or supposed entities it is 'theory-laden'. But we must insist that introspection is neutral between monism and dualism and their various subsidiaries; it reveals nothing of the nature or ontological status of the 'I' or 'self'.

Secondly, if we turn from the individual to the world in general, we find that the rigid separation of all existence into two distinct orders of being, mental and material, not only lacks evidence but seems to run counter to the observed facts. It may have been plausible in Descartes' day as the result of a scientific outlook that regarded the human body and all animals as mere automata bound by rigid mechanical laws. But with the development of modern biology it would be a rash man who would be prepared to mark definitely the boundary between mind and matter. In fact when one considers the range of species and substances, particularly in the light of evolutionary theory, one seems faced not with two distinct orders but with three that almost seem to merge into one scale: one may distinguish the mental (or rather, living organisms with mental capacities, even if only rudimentary ones), the living but non-mental, and the inanimate. And while it is notoriously difficult to draw the line between the living and the inanimate at the level of the proteins and viruses, it is even more difficult and controversial to say where in the evolutionary scale mind or mental characteristics definitely appear. To say that only human beings have minds seems parochial, for traits which seem essentially mental are found among the higher animals, e.g. memory, intelligence, ability to learn, ability to communicate, and the capacity for purposive or goal-directed activity which is plastic or adapted to circumstances. Where then is one to draw the line between mental and non-mental substance? Many people might be willing to put chimpanzees, dogs, or 'the cunning fox' on the side of the angels in this respect, but bees can dance to indicate to others where a source of pollen is, rats can learn routes through a maze or quickly come to avoid a poison bait, and an octopus can be trained not to attack a crab on a white plate from which it has got an electric shock. What one seems to find then is the gradual emergence of various capacities which, when united and greatly elaborated, characterize the human being and give rise to the concept of mind.

Some mental capacities, notably self-consciousness, may be lacking in other animals (though the self-display of many birds suggests that they have a form of self-awareness), but others are often found. The dualism presupposed by interaction theory thus seems wrong in neglecting, or summarily dismissing as mechanical and material, the whole range of non-human living things, and in supposing a hard and fast division into two orders when there seems to be a gradation and continuous development from non-mental to mental.

Thirdly, there is the traditional objection: if mental and material substance are as different as they are alleged to be, how can they interact? This was the difficulty that gave rise to Parallelism, but it is not so impressive now owing to doubts about the dogma on which it rests, viz. that there must be similarity or community of characteristics in cause and effect. Nevertheless no one has given a convincing account of the interaction or explained how physical activity in the material brain can cause private sensations in the immaterial mind. An offshoot of this problem is: how can mental percepts or sensations resemble their material causes in any way, in particular how can the spatial characteristics of physical things be reproduced in the unextended non-spatial mind, as the traditional Representative Theory supposes?

A fourth objection applies chiefly to the strict Cartesian account of the dualism: it was claimed that thought is the essence or principal attribute of mental substance, and that created substances are things which need only the concurrence of God in order to exist. From this it would seem to follow that mental substance needs no aid from the material brain in order to exist and carry on its essential activity of thinking. But all the scientific evidence shows that without a properly functioning body and brain the human mind cannot exist and act at all. Even if one believes that in some way the human mind survives death without the resurrection of the body, one cannot deny that, during life, if the person suffers from serious brain injury or disease, if he takes certain drugs, or if the blood supply to the brain is interrupted, then unconsciousness supervenes and he cannot think at all. If Descartes is correct the mind should be able to think independently of a correctly functioning material brain.

2. TOWARDS A SATISFACTORY ALTERNATIVE

Interactionism, therefore, must be rejected on account of these general difficulties in dualism as well as its inability to explain perception without committing the errors of the Representative Theory. The alternative would seem to be some form of monism, but the first essential to a more satisfactory theory is to replace the notion of mind, as a mental substance or entity, by that of mental activity or ability. This type of approach has a long and respectable history, despite the popularity of dualism, and was in fact made by Aristotle (though he had some Platonic backslidings). Plato, as a dualist, had claimed that the soul or *psyche* was an immaterial entity temporarily lodged in the body, but in the *De Anima* (II, 412a ff.) Aristotle says that it is 'the first actuality of a natural organic body' and is 'the form of a body'; an epigrammatic expression of his view, simpler though slightly misleading in suggesting the soul is simply the function of the body, is, 'if the eye were an animal, sight would be its soul'. 'First actuality' is Aristotle's way of expressing 'disposition' or 'pattern of dispositions', and he contrasts first actuality like knowledge with second actuality, the exercise of knowledge. Expressed therefore in more modern language, his view seems to be this: each animal or person is an organic whole, an entity which can exist as a unity and be the subject of various properties, can act and be acted on. The soul is not an organic whole or substance in this sense at all, nor is it part of one as the head is part of the body. It is more akin to form or function, or rather capacity or disposition. In fact we may regard the soul of an animal as the sum or pattern of its capacities and dispositions to act, react and feel in various ways. It is the form of the body, not as its shape but as a sort of behaviour pattern, or better, behaviour and experience pattern.

Some modification is necessary however: Aristotle was discussing the '*psyche*' which was wider than our 'soul' or 'mind' and meant all that distinguished the animate (*empsychon*) organism from inanimate things. So the disposition pattern which was the *psyche* included eating or locomotion among its actualizations; but we are only concerned with reinterpreting 'mind', therefore it will only be mental capacities and dispositions that are relevant, 'mental' being used in its ordinary contrast to 'physical' and referring to thoughts, feelings, perceptions, volitions or intellectual powers.

Thus the suggestion would be that when we speak of a man's mind we are not speaking of some entity lodged in his body or of a mental substance, but we are referring to the pattern of his mental abilities and dispositions, and so to the ways he can and will react, not necessarily overtly, in various circumstances. One might perhaps illustrate this from ordinary expression about the mind, e.g. 'He has an acute mind' means that he sees the point of arguments quickly, spots mistakes or solves problems easily, and so on. But many such expressions are very metaphorical or may refer to single actions, and it must be emphasized that this suggestion, like the opposing one that mind is a mental substance, is a theoretical claim and not based on linguistic considerations.

Somewhat akin to this is the view put forward by Ryle in his *Concept of Mind*,[1] indeed in one respect he outdoes Aristotle, for the notion of category mistake he puts forward suggests a way of putting the monistic view that Aristotle might have used. Thus if we take the simple category distinctions outlined on p. 68 above (oversimplified as they would seem to Ryle) we can say that the dualists mistakenly regard mind as in the category of substance whereas really it should be in those of action and being acted on. Predicates containing the word 'mind' do not refer to some substance but to how the subject of the sentence behaves or reacts. But this is only another way of putting the main point, which is independent of any special notion of categories.

But despite Ryle's advocacy of the main monistic position and his development of it by a thorough examination of dispositional properties, it is in his book linked with and almost subordinated to another doctrine which is far from acceptable. This is the claim that there are no mental acts, states or occurrences, if 'mental' means 'of a radically different nature and status from overt behaviour' or 'open to privileged access by introspection'. The actions and reactions to which 'mental' words refer are publicly observable behaviour in the world, and where this radical claim cannot be maintained, they are, if actions at all, merely silent versions of overt actions.[2] Thus seeing, hearing, deducing and recalling are not actions or operations at all,[3] and thinking is silent soliloquy, either as sub-vocal speech or as operation with auditory word-images.[4]

[1] Summed up, p. 199.
[2] *ibid.*, p. 25, pp. 161–9, etc.
[3] *ibid.*, p. 151 (cf. *Dilemmas*, Ch. VII).
[4] *ibid.*, pp. 27 and 35 ff.

This behaviourist thesis seems quite incredible. We have already discussed Ryle's claim that seeing and hearing are not activities and his attack on introspection and privileged access. Granted introspection or even retrospection, we have an awareness of a whole series of 'mental' activities, e.g. deciding, concentrating on, realizing, or inferring, which differ in kind from overt actions; while in perceiving, dreaming, imagining and feeling, there seem clearly to be experiences which have nothing in common with overt behaviour and which are privileged in that they are hidden from others. Admittedly mental dispositions may have overt actualizations, intelligence or sensitiveness, for example, being revealed in speech and conduct. But these are not their only actualizations and seem in fact to be secondary to the introspectible ones. Thus intelligence is actualized by realizing or apprehending things more clearly and quickly than another, and one can hardly *act* intelligently without this apprehension—it would then only be a fortuitous success. Or again the sensitive person is primarily one who has experiences and feelings which others do not, or has them in a heightened degree, and this may lead to overt emotional outbursts or appropriate conduct, but may be kept hidden.

Any further rebuttal of Ryle's thesis would require too long a digression here and the salient points have been made by others.[1] My main reason for introducing the question here is to dissociate the view I am putting forward from this type of behaviourism, and I hope to show that a monistic thesis can be developed which can readily admit mental acts and occurrences, indicate how they are related to brain processes, and account for the privileged access of introspection without making it access to a shadow world of mental substance. If that is done there is no temptation to follow Ryle's implausible denial of introspection and his consequent tendency to limit the actualizations of mental dispositions to the overt manifestations by which we infer them.

In an attempt to avoid the faults of dualism I have suggested the monistic thesis that the person is a unity, not an association of two distinct substances or one lodged within another, and is the self-conscious organism that sees, thinks and acts. His mind is not himself as a mental substance, and is not a substance or entity at

[1] e.g. S. Hampshire, *Mind*, 1950, pp. 237 ff.; C. A. Campbell, *Philosophical Quarterly*, 1953, pp. 115 ff.

all; if we speak of 'mind' it should only be as a convenient way of referring to a person's mental abilities and dispositions and so to his introspectible experiences and activities. To progress so far is, however, still to be a long way from solving the mind/body problem, for it merely produces a new, though superior, way of stating it. The central problem now becomes: What is the status of these mental activities revealed by introspection? How are they related to physical activities, in particular to the brain activities without which they do not seem to occur? To answer that the relation is a causal one would be to relapse straight into Interactionism and would suggest that mental activities were phases of some substance different from the physical organism and brain.

A more promising approach would be to suppose the mental and physical (or at least cerebral) activities of the person to be two aspects of one and the same activity. Before a theory on these lines can be stated properly, however, some initial and important points must be made. First, in any double-aspect theory there is the danger that the aspects may be treated as entities or existents in their own right like the 'representations' or 'appearances' of much epistemological theory. One would then have the suggestion that the two aspects were events which represented or symbolized a third unknown event. This would however be triadic rather than monistic, and would be liable to the very defect we have been trying to avoid, that of postulating an unknown order of events allegedly more real than those we know. And apart from that it would be a misinterpretation of the term 'aspect', which is logically more akin to 'view'. When one gets one view of Magdalen Tower from an aeroplane above it and later another one from High Street, one is in both cases seeing the same thing, viz. Magdalen Tower. Hence a double-aspect theory should be monistic in that when one is aware of an aspect of a thing or event one is aware of that thing or event, and so to be aware of two aspects of it is to be aware of the one thing or event from two different points of view, in two different ways, or on two different modes of access. The point of using the word 'aspect' is simply to indicate the limitations of each mode of access, namely that on it alone one cannot be aware of or ascertain all the characteristics of the thing. All the same there is a grammatical undertow towards thinking of the two aspects and that of which they are aspects as

three different things or events on a par with each other, and this must be resisted.

Secondly, owing to the partitive character of perceiving one may only be seeing two different sides or parts of a thing in seeing two aspects of it, as when A and B see respectively the north and south aspects of a building. Even though they are seeing the same building in a general sense, they can be said to be seeing different things if one particularizes and thinks of façades or walls. This may be regarded as a distinction of senses of 'aspect' or of levels of identity or difference. Both senses or levels will concern us, for even in the particularizing sense the persons may well be seeing the same thing, e.g. the same façade or wall. This seems a more exact identity, but it is not logically required and has to be established by other criteria, e.g. by coincidence in space and time or, where appropriate, by concomitant variation.

Thirdly, there is a vital difference between these ordinary examples of 'view' or 'aspect' and the use these words can be given in the mind/body problem. In the former the points of view differ for various aspects but the mode of awareness of or access to the object does not: but in the latter it is necessary to use the words in an extended sense to cover different modes of awareness, rather as if one were to say that in hearing and seeing a collision one was aware of two aspects of it. But the extension required is greater than that, for we are not concerned with two public modes of observation; it is more as if one were to say that X's being in the collision, suffering the impact and so on, and Y's seeing it from across the street were examples of awareness of or access to two different aspects of the one collision. In the problem before us there is clearly a radical difference in modes of access or awareness: the subject's privileged access to his mental acts is by experiencing or introspecting them, but his physical or bodily actions are open to public observation by the senses and appropriate instruments. The importance of this is that a great difference in mode of access will mean a great difference in the characteristics of the aspects revealed, and this may well lead one to regard as two entirely different whole events[1] what are in fact two aspects of one whole event, and so are merely that one event revealed in two radically different ways. The mistake would arise from neglecting

[1] By 'whole event' I mean an event which is not the aspect of another event but itself presents different aspects on different modes of access.

the difference in modes of access, and it may well be that this is the origin of the dualist theories: mental and bodily events seem so radically different as to belong to two different orders of being, and so they would be if the modes of access to them were similar; but if the difference is due to the difference in mode of access then they may be two aspects of the one order of events, i.e. be that one order of events differently revealed. On a mathematical analogy, if *a* is the basic event and *b* the mode of access, then the aspect will be the product of the two *ab*; if '+' then stands for 'same' and '—' for 'different', then —*ab* may be due to +*a* × —*b* or to —*a* × +*b*. What starts out then as a double-aspect theory seems to lead to a complete monism or 'Identity Hypothesis', that mental and bodily events are really identical, only appearing different owing to the different modes of access to them. To give another analogy one might say they are identical much as a ray of red light and a train of electro-magnetic waves of 760 mμ are identical.

Finally we need some neutral way of referring to the situations in which the problem of the relation of mental and bodily events arises, neutral in that it does not imply differentiation into mental and physical but merely refers to stages or situations in a person's life history—situations which will be regarded as whole events presenting the two aspects. I propose to do this by use of the verbal noun, e.g. 'X's being afraid', 'X's having a pain', 'X's thinking of Y', 'X's perceiving O'. In these the mental events will be X's feelings of fear or pain, his thoughts, mental images or sensory experiences; and the physical events will be the bodily, and especially the cerebral, events occurring in X at the time. The problem is that of the relation between these two sets of events; how can it be explained if it is not a causal one as Interactionism claimed?

Having disposed of these preliminaries we may now proceed to an Identity Hypothesis of the relation of mental and bodily events, first making some general distinctions and then proceeding to a more detailed correlation.

3. THE IDENTITY HYPOTHESIS

A person, we have assumed, is a unity, an organic whole, and is the entity that perceives, thinks and acts; and he and his activities can be observed or experienced in several different ways and so present different views or aspects. At a general level of distinction

these may be divided into two main groups which I shall refer to collectively as the outer and inner aspects. The outer aspect is what other persons can observe of him and his activities, and as far as it is concerned a person and his body are the same entity, granted the appropriate sense of 'body' as an extended physical organism of the human species; X's body = X *qua* externally observable, and the expressions 'person' and 'his body' have the same referent or denotation, though different sense or connotation. Within this aspect we may distinguish two levels or types of observation: (*a*) the 'naked eye' level, ordinary perception, with the corresponding aspect what human beings can perceive of X and his activities, and (*b*) the scientific level or aspect, what may be observed of X with the aid of various scientific instruments. At the latter level only meter readings or cathode-ray-tube traces may be perceived, and so this observation involves appreciable inference and sometimes imagination.

The inner aspect of a person's life is very different in character, for it consists in the various feelings and experiences of the person concerned. And this difference is understandable because of the great difference in mode of access involved; X's mode of access to the events of his life is not merely observing them from outside, as Y or Z have to do, but actually undergoing and experiencing them. There is a certain difficulty in discussing this aspect and mode of access, because the experience or feeling and the experiencing or feeling of it seem to be indistinguishable. But this should not prevent their theoretical distinction, for on the adverbial analysis of sensing, it is claimed that the object or content is indistinguishable from the sensing of it, and yet there is considerable theoretical discussion of sense contents; in much the same way we shall be able to consider inner aspects. There is however another approach to the inner aspect of feelings and similar experiences, namely by introspection or retrospection; Here we have a closer analogy with perception in that content and act are more readily distinguished and the former can be discussed, labelled and, if a pain, located; but introspection differs from the feeling of the emotion or pain, and from normal perception, in that extraneous elements are introduced, e.g. one is as it were detached and can contrast the feeling with the self feeling it. Nevertheless the central core, the content of the feeling, remains sufficiently the same in both the feeling and the introspection of

it for us to regard the content as the inner aspect and the introspection and the feeling of it as differing forms of inner access to it. Also as 'feeling' is only applicable to a limited range of situations, we must allow as corresponding modes of access 'undergoing the experience' or even 'being the actor, the person concerned', for the person who decides or acts has a special relationship and access to the action by virtue of being the person who performs it, and this yields its own aspect or experienced content. Granted then two modes of inner access, feeling the pain or undergoing the experience on the one hand and introspecting it on the other, we may note that each is privileged in the sense that it is limited to the person concerned; others cannot share in this inner aspect, but they can observe from without the 'whole' event or situation in the person's life of which the experienced content is an aspect; only then, owing to the radically different mode of access, that event appears as a pattern of behaviour or of brain activity.

So far I have only indicated a general distinction between inner and outer aspects in order to suggest that two apparently different types of events, a person's feelings of fear for example and his observable physical reactions and behaviour, are two aspects of the basic whole event or situation, his being afraid. But though by the logic of 'aspect' we can then say in a general way that X by feeling or introspecting the feeling and outsiders by observing X's reaction are aware of the one basic event, and that X's feelings and his observable reactions are both this one event differently revealed, such a statement is still too vague. We require a precise identification corresponding to the particularizing case where the two observers in seeing two aspects or views of the building were seeing the selfsame wall or façade as well as the same building; this is especially forced on us by the different approaches to the outer aspect, one of which seems to reveal causes of what is seen on the other. In order then to show that certain mental and bodily events are strictly the same event, a more detailed comparison is necessary based on simultaneity in the one person, on concomitant variation, and on the necessary and sufficient conditions of the events concerned. Also, though its importance will only appear later, we may distinguish a third point of view besides those giving inner and outer aspects. It is that of the correlator or philosopher, who tries to take account of both aspects and decide which events and aspects can be identified.

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If we attempt this it appears that the important and exact correlation is between the scientific outer aspect and the inner aspect, and that what can be perceived externally at the time is in many cases to be regarded as an aspect of secondary effects or causes of brain activity corresponding to the feeling or experience. Thus in toothache it would seem from cut or anaesthetized nerves that the feeling of pain should be correlated with cerebral activity caused by the decayed tooth. With emotions there may be widespread organic disturbances, some of which together with certain behaviour may be perceivable, but it seems probable on experimental evidence that these are secondary to brain activity, especially in the thalamus, and that the emotional experience should be correlated with this activity. (Also intro- or retrospecting must presumably be correlated with different brain activity from that which seems to correspond to the feelings introspected—though that is another kind of distinction.) From these correlations we must conclude that the feelings and the appropriate brain activity of a person in pain or in some emotional state are two aspects of the one event in a detailed particularizing sense; hence they are strictly identifiable, i.e. are the one event (his being in pain or being afraid) differently observed. A feeling of pain and a pattern of brain activity appear so different that if they were both perceived or both introspected we should have to say that they were two different whole events. But this is not so; their marked difference in appearance can be attributed to the marked difference in mode of access to them. They can therefore be regarded as one and the same event in a person's life, and the difficulties of dualism are thus avoided.

We pass now from feelings to imagery or thought, of which much the same account can be given. They comprise a wide variety of experiences and activities, but can be arranged in order theoretically so that one type of experience could be said to merge into another. Thus there is a gradation from eidetic imagery or realistic dreams, through fairly vivid pictorial imagery of some memory and imagination, through fainter pictorial imagery and rather nebulous, probably motor, imagery, and then through imagery of words, visual or auditory, to seeming to speak to oneself.

I assume that having images or dreams is, like having sensations or feelings, to be regarded as a mode of experiencing and not as a type of perception of objects distinct from the percipient.

Admittedly there is a certain subjective similarity to perceiving, and in certain cases it may be impossible to distinguish imagining from perceiving except in retrospect or with the assistance of others; the reason for this is presumably that the corresponding brain or nervous activity is similar in nature or location to that which occurs in perception. But at any rate the subjective similarity is illusory in that in imaging, as opposed to perceiving, the existence of such distinct objects cannot be confirmed by other persons or by subsequent events.

The suggestion then amounts to this, that the various experiences of imagining, remembering and thinking, e.g. images of various kinds whether vivid or vague, are the inner aspect of these various episodes and activities in a person's life and are what the person concerned experiences as an actor and not spectator in these situations, whereas brain activity is an outer aspect and is what can be scientifically observed or inferred by others. These experiences, particularly in thought, may be rather vague and nebulous, but I do not see how they can fairly be denied, and reluctance to admit either them or privileged access to them may be dispelled if it is realized that the access is not to a ghost world but to the same events or activities as neurologists may observe from without.

There is, however, as in feelings, a distinction to be made between those situations where introspection occurs and those where it does not. In the simple case one is aware just of the imagery, vivid and pictorial, verbal, or vague motor imagery, which is the content of the thought and the inner aspect. (The detail of the imagery, e.g. what scenes it represents, what questions seem to be asked, what words seem to be spoken or heard, will vary of course with what is being thought about, as presumably will the corresponding patterns of brain activity.) But if one tries to introspect the thought and describe the process and content, extra features come in; one is aware of oneself as distinct from the thought and as thinking, that is as directing or 'manipulating' with various degrees of success the pictorial or verbal imagery or as realizing certain properties of them or relations between them. It is difficult to be more explicit here without begging the question against some of the main theories of thought, and even this vague statement might not be regarded as sufficiently neutral; but any acceptable theory would have to admit experienced contents and introspectible activities in thought, and however we describe

these my thesis is that they are the internal aspect of thinking, what the thinker is aware of in doing the thinking, or more rarely by introspecting it. They are not caused by or causes of brain activity, for that means dualism, nor do they occur without brain activity, as far as is known; hence they must be identified with the contemporaneous brain activity without which they do not occur, and they and the brain activity should be identified with the person's thinking, deciding or imagining. The experience and the brain activity are aspects of his doing this and so *are* his doing this as revealed on different modes of access, but this seems to hold in the particularizing as well as the general sense, and they would seem to be capable of cross-correlation and more precise identification with each other. But though they are, it is suggested, one and the same event, they appear to be two different events because they are the result of different modes of access to it, and for convenience we have to speak of them as different events. But when we do this we must remember that they are different aspects rather than different whole events; neither having images (or seeming to speak to oneself) nor the corresponding cerebral activity is the whole of thought, the whole of the episode of the person's thinking; though in being aware of them one is being aware of that episode.

4. ADVANTAGES AND ASSUMPTIONS

In this way the various mental activities and experiences can be explained without having to postulate a second substance or order of being and without destroying the unity of the person or living organism. As against dualism the theory is simpler and more economical, in addition to avoiding some notorious difficulties; as against behaviouristic monism it is more plausible in that it does not have to deny mental events and experiences or privileged access to them by introspection. Indeed privileged access, whether by undergoing the experience, performing the action, etc., or by introspection, has importance in addition to being the source of the inner aspect of these activities: it provides a rough differentia of a mental activity to replace the dualist one that 'mental' means 'in the mind'; one can say that a mental activity is one in which the inner aspect is of primary importance, i.e. one where privileged access reveals more than external observation and provides the features which distinguish the activity from others. Thus we

know most about walking from external observation and can most easily distinguish it from running by such observation rather than by kinaesthetic data (and such data are strictly effects of the movements); but we can only tell thinking of X from thinking of Y by their inner aspect, and must rely on it also for distinguishing deciding from imagining, for example. This is not a wholly satisfactory criterion of distinction, nor was the dualist one; neither fits the distinction of mental from physical pains, which is a matter of their cause. But however we use the word 'mental' the important point is that the Identity Hypothesis not only does not deny the inner aspect of thought, decision and feeling, but can regard awareness of it as, at present at least, the more important source of knowledge about them.

A modern development that is more easily accommodated on this theory than on dualism is the hypothesis of unconscious mental operations. Largely as the result of Freud's work it is widely held that certain types of behaviour, particularly but by no means exclusively that of the mentally unbalanced, are due to unconscious wishes or fears. Thus it is suggested that forgetting to do some action may be due to an unconscious desire not to do it. There is admittedly divergence of opinion about this, particularly in such simple cases of normal behaviour, but in view of the usefulness of the hypothesis in psychiatric treatment and its acceptance by psychologists, it would be difficult to deny some scope to unconscious motives and activities. But how can they be explained on dualist theory? If the essence of mind lies in its conscious activities, in its thoughts and decisions, it is difficult to see how it can indulge in unconscious activities which are the negation of that essence. And once it has been admitted that there are activities of the mind which are beyond the reach of introspection and self-awareness, the way is open to the supposition that it may have properties we are not aware of. If mind can betray its essence by acting unconsciously it may even be material or be the physical organism. Or perhaps dualism is too economical—the person is really a trio, mind, body, and unconscious mind (if Freud is to be taken literally it is more like a chamber orchestra). At any rate we could argue *ad hominem* that if 'mind' is to be taken as the name of an entity different from the body so should the 'unconscious' and perhaps the 'ego' and the 'id'. And once the protest has been raised against these hypostatizations, 'mind' will

hardly survive unscathed. But if one rejects them all and thinks on monistic lines of various activities of the person, then the notion of unconscious activities presents little difficulty. We already have (i) conscious mental activities presenting two aspects—brain activity and an experienced or introspected content—and (ii) physical activities, which possess little inner aspect and normally take place in the body outside the brain, though they may be regulated by it; to these we should now add (iii) unconscious mental activities, of which there is no inner aspect, nor as yet any outer one, for they are inferred activities. But it is to be supposed that the lack of an inner one is characteristic of them, while lack of an outer is accidental. If we could differentiate brain activity adequately we should detect the outer aspect of unconscious activities, namely some form of brain activity very similar to that which occurs in the conscious wishes, desires and so on which they are supposed to resemble and in terms of which they are described, yet lacking some as yet indistinguishable characteristic which would make them 'emerge into consciousness', i.e. give them an inner aspect as well. Though admittedly very speculative, this does at least suggest how unconscious activities can be admitted on this theory without jeopardizing it; and that is more than can be said for dualism.

Two further points must be made about my theory before we can consider possible objections to it. The first is that all the supposed evidence of interaction between mind and body can be equally well interpreted on the Identity Hypothesis.[1] Let us take a few typical examples: trapping one's finger causes pain, two whiskies make one cheerful, the thought of food makes one's mouth water, or one moves as part of a planned action. On the first two it is common ground that the nerve impulses or alcohol set up or alter brain activity; but whereas the Interactionist says that the changes in brain activity cause changes in the mental experiences, on my theory they are identified, and are the same event in the person's life differently observed, not successive events. The feeling of pain or cheerfulness is the inner aspect of the situation of suffering from a trapped finger or of being affected by alcohol, and the changes in brain activity are the scientifically observed outer aspect; and from the correlator's viewpoint they can be precisely identified in a way the feeling and the finger

[1] In this the hypothesis is markedly superior to Parallelism, apart from the dualist character of the latter.

damage cannot. There is still causation in that the finger damage (or alcohol) affects brain activity, but not a second causal step from brain to mental experience. Similarly the last two examples are only singly not doubly causal. It is not that the image or thought of food or the decision to move cause brain activity which in turn causes functioning of the salivary gland or muscles; it is rather that the thought or decision *is* the brain activity which causally affects gland or muscles.

A similar reinterpretation can be applied to psychological medicine. One speaks of psychosomatic diseases, those where some such psychological state as continued anxiety may cause ulcers or other physical effects, or one may say that one mental illness is due to physical causes, e.g. to syphilis, while another is solely of psychological origin, being due to conflicts and frustrations. But it should be recognized that this kind of language suggests dualism; on the Identity Hypothesis, although one can regard anxiety as a whole situation and thus as a cause, one should preferably avoid the suggestion that the cause is entirely psychical and should say that the ulcers are caused by the brain activity which is the correlate of, and in a sense is, the anxiety state. Similarly, while allowing that fears and conflicts may cause a manic-depressive reaction, one should also emphasize that the supposed cause and effect, as whole situations, have cerebral aspects identifiable with the more obvious inner ones. Hence it is only to be expected that physical treatment, such as drugs, electric shocks or surgery, will be as effective as psychological treatment, at least when the detailed cerebral correlates are better understood.

The second point is to stress the vital assumption of my theory that mental activity, whether regarded as the whole activity presenting two aspects or as the inner aspect only, is always accompanied by cerebral activity; and, furthermore, that they vary concomitantly so that there is cerebral activity of different kinds or in different areas corresponding to the different kinds and subjects of thoughts, images and feelings. If it could be proved that some mental activity occurred without any corresponding brain activity, that would be fatal to the theory as I conceive it. Admittedly one might say that here was a case where whole activity of the person, his thinking or perceiving, occurred, but was only available on the inner aspect. And in practice that is true of many, where no outer aspect on the scientific level can definitely be distinguished by

present techniques. But that limitation does not prevent the assumption that the required cerebral activity occurs and may eventually be distinguishable in full detail; the serious situation would be if it were shown that no outer aspect will ever be available because no such activity is occurring. The reason is that the theory is grafted on to the publicity assumption that the person is a self-conscious, self-determining organism and as such is an observable part of the physical world. Mental experiences are then explained as the inner aspect of certain whole activities of the person, as what it is like to be the person acting in such a *milieu*, and the brain activity as what can be observed of the whole activity by scientific means. But the superiority of public scientific observation is assumed in that it reveals the substances, the fundamental structure and framework in which these activities have to be placed. The reality of mental experiences or whole activities is not denied, merely the supposition that they reveal or qualify substances in a different world from the physical one. But to deny brain activity corresponding to certain mental activity would be to deny that the person as a physical organism was acting; it would thus imply access to another, mental, world of entities in which these activities could take place. And this would be to abandon my theory for dualism.

The assumption that mental activity is always accompanied by brain activity, even though the latter cannot yet be distinguished, would be widely accepted, but in view of its importance I shall briefly indicate some reasons for adopting it. First, it is in accord with the nature of the human brain, especially when compared with that of animals. The enormous number of brain cells and the complexity of their interconnections makes the supposition of differences in brain activity corresponding to differences in mental activity quite credible, especially when one considers the large area not identifiable with sensation or motor activity. If the mind or self can and regularly does think on its own without the brain, it is difficult to see what function all this cerebral development performs; and if the person regularly needs his brain to think with, one is puzzled to see how he can manage without it—it would be rather as if one supposed that he could sometimes breathe without lungs. Further, there is an obvious, if rough, correlation between the intelligence of various animals and their ratio of brain weight to total weight, or more significant apparently,

brain weight to spinal cord weight. (The latter ratio is about 1 : 1 in lower animals, 15 : 1 in apes and 55 : 1 in man, and the main difference is due to non-sensory areas.)[1]

Secondly, the general conclusion that mental ability and activity depend on a suitable brain is confirmed by evidence of brain injury or disease and of the operation of drugs. Many forms of idiocy or mental deficiency are due to improperly developed or injured brains or to biochemical deficiency. Injuries and diseases of the brain in later life cause various impairments of function (loss of memory, attention, self-control or power of recognition) or even complete insanity, while a surgical operation may be undergone to alter the personality. Admittedly persons and animals have a limited power of recovery of function after suffering the destruction of part of the brain tissue, but this seems due to another part of the brain taking over the function. And apart from the proper structure of the brain being necessary for mental ability and activity, it also requires a proper blood supply and nutriment: cutting off the blood supply by pressure on the carotid artery will produce unconsciousness; lack of oxygen, as Himalayan climbers know, produces mental confusion and saps will power; lack of more abstruse chemicals will cause idiocy or even insanity; while the mental effects of various drugs are well known. Detailed evidence on all these points could be greatly elaborated.[2]

Thirdly, a more exact correlation can be attempted in certain cases, and is of great interest. Electro-encephalograms, records of the changing electrical activity in the brain obtained from electrodes on the scalp, clearly show changes concomitant with the beginning and end of certain types of mental activity. Thus when a person is sitting quietly and relaxed with his eyes shut, conscious but not thinking of anything ('his mind a blank' as we say), the 'alpha rhythm' is prominent. If he gets drowsy or falls asleep, or loses consciousness, other rhythms appear. More important, if he opens his eyes and sees things, or if he hears them, or even if mental attention occurs, the alpha rhythm is replaced by faster ones. Similarly give the person a problem to solve and the alpha rhythm disappears, to reappear when it is solved and relaxation

[1] See N. L. Munn, *Psychology*, 2nd. edn., p. 50.

[2] On these and subsequent points see: C. T. Morgan and E. Stellar, *Physiological Psychology*; the articles in *Handbook of Experimental Psychology*, ed. S. S. Stevens; or N. L. Munn, *Psychology*. These books discuss or give references to detailed evidence as well as providing useful surveys.

returns. Mental effort is also associated with other electrical phenomena, though less generally and surely. Fast 'beta waves' occur, and in about half the subjects 'kappa waves' can be detected when they are reading and thinking. Unfortunately the method of picking up electrical activity in the brain through the barrier of the skull and scalp is crude, and the details of the waves are difficult to distinguish; but that changes at the beginning and ending of mental activity can even so be detected is significant evidence of concomitant variation. We may also mention 'action potentials': slight electrical activity is detectable in muscles related to the kind of thought we are having at a particular time; thus in normal 'verbal' thought one can detect such potentials in the tongue and throat, while they occur in the eye muscles during visual imagery and in the arm during imagined arm movements; most interestingly they occur in the hands of deaf mutes when thinking. If we can presume that they are the effects of a brain activity far more difficult to detect, they support the general supposition of the concomitance of mental and cerebral activity, as well as the suggestion that in imagery the same sort of brain and nerve activity occurs as in perception. The psychogalvanic reflex may similarly be adduced: this, the principle of the so-called 'lie detector', is a change in the body's electrical resistance, probably connected with perspiration; it is a sign of emotional response and occurs when an idea or stimulus sets a person in readiness or expectancy for some event. Being controlled by the pre-motor area of the cortex, it may be regarded as an effect of brain activity connected with these situations, and so suggest that 'mental' readiness and expectancy occur with brain activity even when no action is attempted.

This evidence of detailed correlation is far from complete and is controversial, but as its defects seem to lie in the unavoidable crudity of detection methods and in the fact that one is often forced to deal with effects only of brain activity, it seems both important and significant, especially in view of the general evidence of the necessity of a properly functioning brain for mental activity. And even that general evidence was worth perhaps tedious emphasis because of its part in the fundamental assumption of my theory and because that assumption has been denied. We must now consider that denial, the first main objection to the Identity Hypothesis.

5. AN OBJECTION FROM PARAPSYCHOLOGY

Recent attempts have been made by Professor Rhine to defend dualism by advancing the findings of 'parapsychology',[1] and these amount to a direct denial of my basic assumption in their claim that in the so-called 'psi-phenomena' we have examples of activity which the mind pursues independently and without the body being involved. 'Psi-phenomena' is an untendentious name given to certain alleged human activities, namely the ESP or 'extra-sensory perception' group and 'psychokinesis'. The former covers 'clairvoyance', i.e. perception of things and events without the aid of the senses, precognition, i.e. similar awareness of future events, and telepathy, i.e. direct non-sensory awareness of the contents of another person's mind. Psychokinesis is the ability to influence physical events without use of the body, e.g. to 'will' the dice to fall in a certain way.

A little more elucidation is necessary before considering the genuineness and possible interpretations of these alleged activities. First, we must make a clear distinction between spontaneous and laboratory phenomena. In spontaneous cases the person has 'second sight', foresees some disaster or accident or 'reads' another's thoughts. These are not scientifically testable and so, as Rhine himself agrees (p. 48), are not admissible as evidence in the controversy; coincidence, fraud, exaggeration, remembering only favourable cases, and so on, cannot be ruled out. The laboratory phenomena are scientifically testable but are much less spectacular: they are chiefly confined to guessing unseen cards or influencing dice throws—phenomena that can easily be repeated, checked and calculated. One must beware of allowing the spectacular but unchecked spontaneous cases to give undeserved glory to the laboratory ones, for they may not be genuine, or if genuine may not be the same phenomena. There is an important difference in that normally only in the spontaneous cases has the subject any imagery of the scene 'perceived' or any confidence in his correctness. Secondly, psychokinesis is rather more dubious as experimenters are apparently not all agreed that it really occurs—the

[1] J. B. Rhine, *The Reach of the Mind* (page references to this book are given in the text). This section is directed against his views, and I have no quarrel with those workers in this field who would agree that the evidence so far amassed does not require any particular theory of the relation of mind and body and does not support the denial of my assumption.

figures obtained may not be significant, or the effects may be due to the experimenter's choosing the target under unconscious guidance of ESP, or to slight unconscious physical reactions by agent or experimenter.

In tested ESP, on which we shall concentrate, it seems established that over long runs good subjects can score significantly better than chance results in guessing unseen cards, even in guessing a card not yet selected. Thus if with the special cards used a chance result is 20 per cent correct, the good subjects guess as much as 28 per cent correctly in a long run. The odds against this result being due to pure chance are enormous, and the result does not seem to be affected by varying the distance or barriers between the guesser and the card. Rhine maintains therefore that this shows that the subjects have extra-sensory perception of the cards, i.e. the mind can perceive things independently of the senses and brain. (And if psychokinesis be admitted the mind can influence the physical movement of dice independently of brain, nerves and muscles.) He claims that this 'demonstrates' a 'relative dualism', a 'distinct difference between mind and matter', and shows that the mind can 'escape physical boundaries'; it reveals 'something essentially transphysical' in man, a 'psychological soul' (pp. 164 ff). These conclusions, it is further claimed, should support religion and the spiritual outlook, thus being of enormous value to better human relations.

This dualist hypothesis is not only not demonstrated by the evidence, but is open to several serious objections:

(i) If the phenomena are mental in this important way one would expect them to be conscious, but they are not. In laboratory ESP the subjects have no mental image or picture or consciousness of the unseen card they guess, and they do not know or even feel confident when they have guessed correctly. Hence it is very tendentious to call ESP 'perception', and if it establishes anything about the mind it is about the unconscious mind, which anyhow is a problem for dualism. Not only are the spontaneous cases of 'clairvoyance' misleading in this, but if one wants spontaneous analogies for laboratory phenomena they would seem to lie in the runs of luck one may get at card games.

(ii) On Rhine's hypothesis one would expect telepathy to be the best attested of the psi-phenomena since it is presumably the

communication of one 'transphysical' 'psychological soul' with another. But on his own showing,[1] telepathy is the least well-established and least frequent of the phenomena, most of its apparent cases being better explained as cases of the others. But if psi-phenomena are instances of the mind acting independently of the body and showing its immaterial nature by escaping physical boundaries, why are they predominantly instances of the mind's perceiving or acting on physical objects like cards or dice?

(iii) When one reads Rhine's claims concerning the consequences of these phenomena even for philosophy, let alone the future of mankind, it is amazing on what a slender basis the towering superstructure rests. Perhaps the most striking characteristic of the laboratory psi-capacities is their inefficiency and elusiveness. ESP is fantastically inefficient compared with normal perception by the senses; on pure chance you get 20 per cent right, and the best ESP subjects average 28 per cent right, i.e. less than one correct answer in ten can be attributed to the mind, and from the co-working of ESP and chance you still get over 70 per cent wrong. The English claims for precognition show fewer successes, while psychokinesis is even worse—23 per cent successes and 77 per cent failures seems an average sort of performance, as against 21 per cent right by chance. And the phenomena are admittedly elusive in that the capacity of good subjects declines so that they get runs of chance or worse than chance results. Even if this is not luck evening out, it is, especially with the inefficiency, a very poor advertisement for mind, and suggests that the beneficial effects of the phenomena are chimerical.

(iv) One feature particularly apposite to the thesis I am defending is that even these allegedly transphysical capacities are greatly influenced by physical factors, e.g. drugs; if narcotics are taken the results fall off badly. There seems to be no evidence that they can occur without a properly functioning brain or that they are not attended by brain activity—in this respect electro-encephalograms and tests for action potentials would be interesting. Rhine claims that the capacities are influenced by psychological factors; they decline with boredom, the presence of spectators or unsympathetic experimenters, or even darkness (rather suspicious some of these and darkness is physical rather than psychological); they are encouraged by desire to succeed or rewards for success.

[1] p. 43; but many investigators would disagree.

But this kind of factor may also affect physical performances, e.g. athletic success; indeed the form or staleness of athletes seems not unlike that of psi-performers. And if my theory is right even these psychological factors have cerebral concomitants.

(v) It is not very clear from Rhine's book how common good ESP subjects are or how many score chance or less than chance results. But runs with less than chance success seem to occur not infrequently, even with good subjects and despite the greater attention paid to promising performers. If such runs are at all common it is difficult to see how this is explained on the ESP hypothesis, for absence of psi-capacity or failure to use it owing to boredom, should leave chance results; there is the suggestion that below-chance results are due to 'seeing' the right answer but avoiding it and giving a wrong one. This allegation of unconscious deception is not very plausible, and one is left wondering whether runs of luck, good and bad, are not much more common than is allowed for on the current theories of probability on which Rhine relies.

(vi) Finally, Rhine's hypothesis is inadequate in that it still leaves us in the dark as to how these allegedly mental capacities work. There is even disagreement among the investigators as to which of the phenomena are the best established, e.g. British investigators seem to find more precognition than Rhine and much less clairvoyance and psychokinesis; and they also differ as to whether the phenomena can all be explained in terms of one psi-capacity, and as to which this is. But much of the difficulty for the outsider in understanding these alleged capacities lies in their differences from normal perception or even normal mental activities. Apart from the unconsciousness and lack of confidence mentioned, it seems that ESP enables you to 'see' what you could not normally see even without the various screens, e.g. it is claimed that one can have ESP of all the cards 'down through' a pack lying face downwards. Even by staring at the pack one could not see them, so how is it done by ESP? Another problem arises about the claims for precognition: there is nothing especially mental about it, for the mind does not normally precognize, as opposed to planning and inferring, and no amount of pondering will tell you what, if anything, you will dream of tonight or what you will be thinking of two hours hence. You might make an intelligent guess, but that would be different. Nor is the alleged

indifference to space and distance very mental: even when we think of absent objects it is arguable that we do so by means of present symbols, and there are no such symbols in ESP. One would in fact have more confidence in the suggestion that ESP is the 'reach of the mind' if it displayed any positive mental characteristics such as consciousness, rationality or even the loose association that leads from one train of thought to another. Rhine's reason for saying that these phenomena are mental seems to be the negative one that they are not physical or at least are not explained by known physical processes. But that begs the question by the dualist presupposition of a strict dichotomy of mental and physical (or material); and there is no reason for supposing that 'as yet unexplained' or 'not explained by known physical processes' amounts to 'mental'.

Rhine thus seems to be indulging in premature and wishful thinking in rushing to fill this gap in our knowledge with the dualist 'mind', and such arguments from our ignorance have often been dangerous in the past.[1] The lack of a present explanation we must admit: there are alternative hypotheses, e.g. that the phenomena are due to types of radiation as yet undiscovered, or that they are not genuine in that they are due solely to faulty conceptions of 'chance' and 'randomness' in present statistical theory; but these alternatives are unproven and open to objections as serious as those we have advanced against Rhine's. But lack of a satisfactory explanation for something is nothing new, and is no excuse for rushing to 'mind' as a *refugium ignorantiae*; in this case the lack seems to be due to the elusiveness of the phenomena and to our ignorance of their necessary conditions. Until these defects are remedied there seems little hope of progress, and, pending adequate research on psi-phenomena, we must suspend judgment and concentrate on building an acceptable theory of the sensory perception and non-psi mental phenomena which are the vast majority and which are better understood and readily available to all. The theory I suggest does not explain the few facts of parapsychology—no theory has yet succeeded in doing that—but at least it is not refuted by them; for there is nothing to prove that the exercise of these powers by a human being does not require a properly functioning brain or that it is unaccompanied by brain activity.

[1] Lord Cohen in *Philosophy*, 1952, p. 206, gives some examples.

6. FURTHER OBJECTIONS ANSWERED

An important objection to my theory arises out of certain arguments of Professor Blanshard, which though directed against slightly different views might be thought to apply to mine also. I shall discuss first his general criticism of the close correlation or identification of mental activities with brain activity. He argues (in *The Nature of Thought*, Vol. I, p. 72) that the laws of succession of the two series (i.e. of our thought and of events in the brain) are so widely different that there can be no point-to-point correspondence between their elements. In reasoning logical necessity or its apprehension may direct our thoughts from A to B, and so 'logical connection helps to determine psychological succession', but 'in the movements of physical particles it is generally supposed that logical necessity plays no part'. Similarly he claims that mental activities involve judgment, selection among experiences and 'purposive determination', whereas brain events are connected by 'ordinary mechanical causation' (pp. 168–9).

This criticism however seems to commit the error, which we noticed earlier when discussing Interactionism, of neglecting the intervening animal world and so creating an illusory unbridgeable gap between mental and physical. Blanshard assumes that brain events are governed by 'ordinary mechanical causation', that their sequences are the same as those of the movement of physical particles. But the brain is part of a living organism, and so its processes are those of animate not inanimate matter. In fact there seems to be a double error, namely the assumptions first, that the behaviour of inanimate systems is necessarily as limited as the movement of physical particles (the billiard ball example of ordinary mechanical causation comes up on his p. 333), and second, that brain events must follow the sequences appropriate to inanimate systems, however elaborate those systems must be. It will be worth while to develop these points a little.

The first assumption has become much more clearly erroneous since 1939 when Blanshard's book was published. Even at that date the capabilities of radio and electrical equipment might have raised doubts, but since then machines have been developed with a range of powers which has revolutionized our conception of the possibilities of mechanical systems and makes billiard balls and moving particles seem ludicrously primitive examples. There

already are machines which can perform abstruse calculations and solve certain mathematical problems more quickly and accurately than men; the working out of a task by one of these computers follows the rules of logic and so in a sense 'logical connection helps to determine' the succession of their operations.[1] In addition there are machines which can translate material from one language to another, which can guide a missile automatically so that it reaches a target trying to evade it, or which can learn to find their way through a maze more efficiently than a rat (they get it right the second time), while a chess-playing machine has apparently been designed. Now of course these machines have to be planned and created by men, they have to have their data fed into them in a suitable form, and so on. But when all these reservations have been made, it still remains that their intricacy and variety puts out of court all conception of the merely mechanical being like clockwork or billiard balls; indeed they make it difficult to define animate behaviour, for their performance is not easy to distinguish from that proposed as a criterion of living things. Consider for example plasticity, the ability of the organism to reach its final state or goal from different initial conditions in different ways, varying its route or methods according to circumstances: this seems to be exhibited, to a degree which compares favourably with the performance of lower animals, by 'target-seeking' missiles or by Ashby's Homeostat which he designed to meet this requirement; and if ability to learn is the chosen criterion, then the maze-running machines seem to exhibit it and could be modified by statistical devices to be less efficient and more life-like.[2]

As the result of these developments we now have the hypothesis of 'Cybernetics', that the basic principle of these machines, namely that of negative feed-back, underlies the working of the brain and nervous system of animals and is thus the basis of mental and purposive activity. In a 'self-regulating' negative feed-back machine part of the output is fed back in reverse sense to control the input, e.g. if the machine is disturbed by reduction

[1] The point is that following a logical sequence and calculation are 'mechanical'.

[2] A convenient survey of the evidence with references to original work is given by W. Sluckin, *Minds and Machines*. For fuller discussion of the philosophical issues see the symposium 'Men and Machines' in *Proc. Aristot. Soc.*, Supp. Vol. XXVI, 1952, or W. Mays in *Philosophy*, 1952, pp. 148 ff.

of load and starts going too fast, this increase in speed is made to reduce the motive power of the machine so as to restore the original speed; in cases where the aim of the machine is not to preserve a steady state but to approach some target, information concerning the gap between it and the target is fed back to control it. It is claimed that animal behaviour in general is aimed at restoring a steady state after disturbance by hunger or cold and at seeking various goals (normally as part of the restorative process), so that in both these aspects it is controlled by feed-back principles. If this hypothesis were correct, then Blanshard's objection could be answered even allowing that the animate nature of the brain is not significant and that the correspondence envisaged is between mental events and the processes in such complex machines.

I do not, however, wish my defence against Blanshard's criticisms to rest on an acceptance of the Cybernetics hypothesis. The thesis that negative feed-back mechanisms underlie the working of the nervous system is too technical for proper discussion here, but we may note that the experts mostly seem to find it too vague to be helpful and too dubious where it is precise,[1] and we can at least see the main objections to the attempt to explain mental activity by it. First, not all the appropriate types of overt behaviour can be reproduced mechanically: machines do not seem capable of artistic creation, for example, or of more than a very limited plasticity—they can hardly invent other machines or find entirely new ways of doing things. And in calculation a machine can only work on suitably prepared data, and it is in the preparation of data and the interpretation of results that the difficulty lies and mental insight and ability are required. At present it seems that the inability of the machine to invent or do more than it is programmed to do is a difference in kind, not of degree, in overt behaviour. Secondly, even where a machine produces the right result it may not do it in an intelligent way like human beings. The chess machine, it seems, has to run through every possible move, or the computer has to add by counting every unit—there are none of the insightful short cuts of intelligent action.

But whatever the success of machines in reproducing external behaviour, the real objection to the Cyberneticists is that they

[1] See Morgan and Stellar, *op. cit.*, or T. C. Ruch in S. S. Stevens's *Handbook*.

cannot reproduce the inner aspect that above all distinguishes mental activities. The machine has no self-awareness or self-consciousness; it has no emotions and cannot love or hate, and cannot act from these motives or from a sense of duty; it lacks images and imaginative thought and cannot make judgments as to truth or falsity, right or wrong; it cannot make a deliberate responsible choice of a course of action and so must be said to lack intelligent purpose.

I propose, however, correlation of mental processes with the processes of an animate system, the brain of a living organism, not some machine or artefact; hence the Cybernetics hypothesis is not necessary to my theory and the main value of the development of machines is to undermine the billiard-ball conception of mechanical processes. If of course the activity of living brains were eventually explained on feed-back principles, my theory would reduce to a version of Cybernetics, but being independent of how the brain activity is explained it should equally well be compatible with a vitalist account of living processes.

In fact neither mechanist nor vitalist accounts seem very plausible and an intermediate 'organismic' or 'emergence' type of view seems both generally preferable and most suited to my theory. This would emphasize the general principle that any system or organism may, by virtue of the critical arrangement of its parts and their consequent interaction, possess properties of a radically different kind from those of its parts considered separately. This is so widely recognized that its denial amounts to the material fallacy of Composition; it applies to machines (the constructed wireless set has properties and capacities that an aggregate of its parts does not) and to living organisms—contrast the living body and *disiecta membra*. Hence it seems reasonable to suppose that the person as an organic whole will have properties and capacities (including even self-awareness) which are not to be found either in its parts or in less complex and differently constructed systems such as machines or mice. If this emergence of new and distinctive properties is a characteristic of organized systems, it seems hardly necessary to invoke vital spirits or souls or other occult forces or entities to explain the unique characteristics of an uniquely organized type of entity, the human being.

For the present discussion, an important consequence of the fact that the properties of organisms or systems as wholes cannot

be reduced to or explained fully by the properties of their individual parts is that it puts out of court objections based on the laws of *particles* of matter. The type of view I am suggesting, the identification of some mental activity with a contemporaneous and concomitantly varying cerebral activity, does not have to rely on or propose a point-to-point correspondence for all mental activities. The essential claim is that of the correlation and identity of mental activities of the person with whole patterns of brain activity, though this does not preclude detailed correspondence in a range of cases, and the theory is flexible. To say that A varies concomitantly with B may only mean that there is a change in A whenever there is a change in B; it does not follow that the change is in a minute part of A corresponding to a change in a minute part of B, or that the parts correspond. Thus a heard sound varies in pitch as the sound waves vary in frequency, and in timbre as the shape of the wave form varies (or as does the number of harmonics of the fundamental frequency present); but for a 1,000 c/s note there are not 1,000 elements in the heard sound corresponding to the 1,000 wave peaks per second, nor can separate harmonic frequencies be detected in the heard sound. Again, there may be minute changes in B which do not affect its 'emergent' characteristics as an organic whole, and are not matched by concomitant changes in A at a macroscopic level; B may behave like electrical equipment designed for constant performance over a range of input voltages and frequencies. On the other hand it may be possible to trace the correlation of A and B down to their minute parts.

So far as the mental life is concerned it would seem that the level of correspondence varies with the activity. Thus, at one extreme, in visual perception and imagery it seems plausible to suppose that each discriminable element in the inner aspect corresponds to a slightly different point in the sensory areas of the brain and varies with it; at least that is suggested by Adrian's 'cortical map', though one must allow for the changes discussed in my Chapter IX and for serious distortions in the pattern of relations between elements. (Also even here the discrimination may proceed further on the cerebral side, the 'element' or 'point' being analysable into atoms and electrons with no inner-aspect correlates.) On the other hand, emotions, decisions and many voluntary actions do not offer the same scope for detailed correlation; they

cannot be analysed into minute elements on the inner aspect and there seems only to be concomitant variation of the activity or experience, as a whole, with the pattern of activity of a large portion of the brain.

So much for Blanshard's general objections; in a later chapter (IX) he gives a long and detailed criticism of the thesis that a conscious process is identical with a brain process. He attributes this thesis to Behaviourism and interprets it accordingly, so that many of his points would be inapplicable to my version of it. Thus he assumes that the thesis involves saying that pains and similar experiences, even consciousness itself, are illusions, that 'when I speak of an ache or pain the ache or pain that I mean *is* nothing but a change in bodily tissue' (p. 329). I have already rejected Behaviourism, and my theory in no way involves saying that mental experiences are illusions; nor does identification of a mental experience or process with a brain process mean that the former is *nothing but* the latter. To suppose this would be to confuse connotation with denotation, sense with reference. Thus if we say that a ray of red light is an electromagnetic wave of a certain frequency or that Britain's capital city is the largest city in Europe, these identity statements only equate the referents of phrases of different meaning; they do not amount to saying that red light is nothing but an electromagnetic wave or that Britain's capital city is nothing but the largest city in Europe, still less that one of the pairs of referents is an illusion.

Of Blanshard's detailed criticism, therefore, points (1) that differences on the conscious side are more easily distinguishable than differences on the cerebral side and are a clue to them, (2) that we developed an elaborate knowledge of the conscious side before that of the physical, and (6) that we mean something different by consciousness and bodily behaviour, do not in any way refute my type of Identity Hypothesis as they are all facts readily accommodated by it. Likewise we may ignore his criticisms (points 4 and 5) of the supposition that consciousness is an illusion; but more discussion is required of (3) that logical relations of implication and consistency apply only to non-sensible meanings—to say that two billiard balls implied each other would be nonsense—and (7) that no brain activity, including the belief in behaviourism, can be true or false. The first is question-begging in that many would say that it is propositions or statements (or

possibly facts) which imply each other; certainly there is no wish to maintain that brain events as such, let alone billiard balls, do this. The mental correlates of brain events, e.g. thoughts as mental events or introspectible happenings, do not imply each other, so why should brain events, except in a loose sense of 'imply' equally applicable to both? Similarly concerning point (7), 'belief' sometimes means *believing*, as a mental act or disposition, and sometimes *what is believed*, a proposition or set of propositions. It is the first of these, or the introspectible experience therein, that is the parallel to brain activity; while truth and falsity are properties of or relations between statements or propositions, and do not characterize the activity of entertaining or accepting them. The detailed interpretation of these answers will depend on one's theory of propositions. If one holds that they are statements, i.e. indicative sentences, meaningful collocations of words spoken or written, or that they are subsistent entities or 'meanings', there seems no danger of an identity hypothesis forcing one to identify them with brain activity; and even if one thinks they are mental events, concepts or imaged words, this does not mean you are identifying what is true and false with brain activity which is neither true nor false. The charge can be met by a distinction between treating these propositional elements psychologically as mental events and treating them logically as symbols, i.e. as meaning or implying something. It is only in the latter sense that their truth or falsity is considered or asserted: to seek to identify them with brain activity is to treat them purely as mental events, in which respect they are neither true nor false; conversely *if* the brain activity in thought could be differentiated and expressed in or correlated with words, it could be regarded as symbolical and so as true and false.

Lastly we must discuss the objection that my theory is materialist. Unfortunately the word 'materialist' is so vague that it may cover many different charges, and it is so full of religious and political overtones as to make dispassionate consideration difficult. Thus 'materialism', through its association with Russian Communism, has become as a piece of political mud readily slung even by those who are in another sense thoroughly materialist, i.e. who prize money and material well-being above spiritual and intellectual values. Even if we try to cut out emotionalism and muddled thinking the charge is still philosophically ambiguous: a materialist

theory may be held to assert (i) that only matter exists and there are no mental substances or (ii) that only material processes exist and there are no mental events; (ii) implies (i) but they are not equivalent. From the dualist point of view my theory is materialist in the first sense, for it asserts there are no minds as mental substances; but to say this is to beg the question against my theory, for it is only a charge that can be made within the terms of the dualist dichotomy of mind and matter. On the monistic interpretation of 'mind' as a pattern of mental capacities, dispositions and acts, my theory does not deny persons have minds and in that way is not materialist. A similar weakness applies to the charge of materialism in the second sense: if 'mental' means 'occurring in mental substance' then the charge is question-begging in presupposing dualism; if 'mental' means 'introspectible' or 'self-conscious' or is just a label for thoughts, sensations, images and feelings, then obviously my theory is not materialist, for I in no way deny the reality of mental events or suggest (like extreme behaviourism) that they are illusions or reducible to overt behaviour.

This answer may be supported by pointing out that my theory is free from the objectionable features usually associated with materialism. The philosophical sting in the charge is that materialism is regarded as if not explicitly denying mental events, at least so interpreting them as to degrade the human personality by reducing its status to that of a machine and by denying it free will, moral judgment and intelligent purpose. In this respect Cyberneticist doctrine is objectionably materialist and Ryle's behaviourism may have difficulty in escaping the charge. And while I admit that introspection occurs and that such an inner mode of access to a person's mental activities often reveals more at present than the study of brain activity and behaviour, it might be said that there are two essential non-materialist propositions which I cannot accept or which I have so to reinterpret as to destroy their substance. These are, first, that we can act deliberately and with intelligent purpose, i.e. that our awareness of a situation and our consideration of it in the light of our goals and aims may guide our action, and secondly, that we have free will in that we can decide on and initiate action, our choice not being determined by 'mechanical' causal laws.

To suppose that I cannot accept these propositions is mistaken

and depends on misunderstandings about my theory. It seems to assume that though I may speak of the two aspects of a person's activities as complementary and equally valid, I in fact, by treating the person as a publicly observable physical organism, make the outer aspect the master one that shows his true nature, and reduce the aspect revealed by introspection to little more than an epi-phenomenon. Hence it may seem that I deny real existence and effect to purpose and free will, and this conclusion may be supported by another assumption, that if thoughts and decisions are identified with brain activity they must be in effect material processes and share their limitations—they, like brain activity, must be determined by the physical laws to which all material processes are subject. Both these assumptions about my view are erroneous, however, and it is worth while emphasizing this at the cost of repeating earlier points.

Admittedly I accepted the publicity assumption that a person is a publicly observable organism of the physical world, but this assumption and the consequent suggestion of the superiority of public observation apply only to the discovery of the substances, the basic entities of the world. I do not in any way maintain that it must be the sole or overriding evidence of all the activities of all those entities, particularly of human beings. There clearly seems to be an alternative source of evidence of the activities of the latter, namely their 'privileged access' to their thinkings and choosings, and this seems superior in many cases in that it generally gives fuller information about them and may be the only way we can differentiate one from another. But this information is about the activities of the self or person—it does not reveal what the self or person is, in particular does not reveal that he is a mental substance. For the substantial framework, as it were, for the nature of the person in the world, one has to rely on public observation and theories based on it, since the introspective evidence fits either monism or dualism. But one can and must accept this evidence as to the occurrence and nature of mental activities not well covered by public observation, in particular as to the guidance of choice and action by thoughts and past experience.

The further claim that these thoughts and choices and mental activities are activities of the whole person as a unity, as an organism (and not just of his mind) and that if more advanced techniques were available they could be seen also as brain activity,

does not have the unfortunate consequences alleged, and does not mean one has to deny they are free, deliberate and guided by conscious purpose. All it means is that the person must be regarded not only as a living physical organism, but also as a self-conscious organism (that much is involved in privileged access) and a self-determining one, able freely to initiate action and not bound by mechanical physical laws. What the introspective evidence forces on us in fact is a wider conception of the powers and capacities of living publicly-observable organisms. Instead of the fatally narrow conception of them as purely mechanical, which forces us to relegate self-consciousness and self-determination to a mysterious mental substance invented for the purpose, we must simply accept that highly advanced and complex living organisms can of themselves have these powers without the alleged assistance of chimerical lodgers belonging to another world of being.

This may be thought an impossible conclusion, but only I think because of the second assumption that brain activity as activity of the physical organism must be bound by the rigid laws of material particles. I tried to expose this error in my discussion of Blanshard's general criticism. Quite apart from the question of whether these laws are so rigid and determinist in view of the scope of statistical laws in sub-atomic phenomena, the assumption seems to involve the fallacy of Composition in supposing that the whole, the brain (or person) as a complex organism, possesses just those characteristics, including being subject to rigid determinist laws, which are possessed (or thought to be possessed) by all its most minute components. As we saw, this means neglecting not only the great difference between the wide range of performance of complicated feed-back mechanisms and the limited behaviour of physical particles, but also the fact that the brain is part of a living organism immensely subtler and more complex in turn than these artefacts. If one considers the evolution of the human species and the gradual emergence of mental capacities, even if rudimentary, in the range of animal existence, it seems quite reasonable to suppose that, when organisms acquire a brain and nervous system as intricate as that of human beings and with such a wealth of elements and interconnection, they then become capable of self-consciousness and self-determined action. That human beings have these capacities seems obvious; that they have them as physical organisms and hence that a new order of mental

substances does not have to be introduced *ex machina* in a vain attempt to account for them, is the most economical explanation and one in accordance with the general principle that a system or organism possesses, from the very complexity of its organization, properties not found in its various elements or in less complicated wholes.

CHAPTER EIGHT

PERCEPTUAL CONSCIOUSNESS AND JUDGMENT

I. PRELIMINARY DESCRIPTION OF PERCEPTUAL CONSCIOUSNESS

One last major subject remains to be tackled before we can draw all the threads together and offer a final account of perception: that is the analysis of perceptual consciousness. It will be remembered that this term was accepted from Price as a convenient way of referring to the mental activity or state in perceiving; its advantage is that to say a person is perceptually conscious of a tomato, unlike saying that he sees it or that he thinks he sees it, does not imply that his perception is or is not veridical. For some writers this is more than just a convenience, for they hold that the state or activity of consciousness is exactly the same in both seeing and seeming to see and differs only in its relation to the external world. But this begs the question about hallucinations, which may involve the different activity of having mental images; so in this chapter and the next I shall use the term for the conscious mental activity in what is admittedly perceiving, whether veridical perception or illusions like mistaking wax for a tomato, and when we are clearer as to what is involved in that, we can reconsider the question of hallucinations.

We can dispose quickly of a preliminary embarrassment, namely whether perceptual consciousness is a state or activity or process. If one is thinking of it in general, as opposed to reverie or sleeping or absorption in a problem, one may refer to it as a state, but this is not to say much. All it means is that over a relatively long period, during which the state persists, one perception follows another in an unbroken train, and the period is thus distinguished from other homogeneous ones in which no perceiving occurs. But if it is felt that 'state' has a suggestion of passivity, then it would be better to refer to such a period as one of activity, for the perceptual consciousness of some object, e.g. a tree or a tomato, is best regarded as an act, the person being far from passive as we shall see. Perceiving should equally well be regarded as an act, but if one shifts ground and considers the causal chain

involved, it is natural to think of it as a process, and if one is thinking only of the person and object, one may even describe it as a relation. In fact these various terms seem to mean very little, and are more indicative of the point of view from which one is talking than of what one is talking about.

Perceiving and perceptual consciousness must also be related to the distinction of aspects made in the last chapter, though full consideration of this question must be postponed to the final theory. Perceiving presents two aspects, an inner and an outer: at the moment the inner one can roughly be distinguished as what it is like to perceive a tree or tomato or similar object; it could also be described as the content of consciousness in such a situation; the outer aspect is the causal process from object to eye and brain. As the mental activity occurring in perceiving and, perhaps, in other situations, perceptual consciousness is a whole activity, neutral between and allowing the two modes of access. Hence 'X's being perceptually conscious of a tree' is a situation with two aspects. The inner one is the same as that of 'X's perceiving the tree'. The outer aspect, in the strict particularizing sense, is brain and perhaps nervous activity, which is presumably of the same kind as that which occurs in, and is part of, the outer aspect of 'X's perceiving the tree'. Perceptual consciousness is normally part of perceiving, and, when it is, its outer aspect is part of the outer aspect of the perceiving, and the brain activity concerned is due to the causal chain which formed the rest of the outer aspect of the perceiving. But this may not be so, and the causal chain is never comprised in the outer aspect of perceptual consciousness; perceptual consciousness (and its brain activity) may, it is supposed, occur without external cause, and the chief aim of distinguishing it from perceiving is to allow for this.

Although most of our information about perceptual consciousness may seem to come from the inner mode of access, i.e. from experiencing and introspecting it—and this may tempt us to think that it has only an inner aspect—yet the outer aspect, especially if taken in the more general sense as including behaviour as well as brain activity, cannot be neglected as a source of evidence, and many of the most interesting discoveries have been made by experiments, not just by introspection. Also it has been widely held that perceptual consciousness involves various activities of inference, interpretation or even 'pure' sensing, and as these are

normally quite unconscious they present no inner aspect and cannot be introspected; we may suppose that they do present an outer aspect in the strict sense of brain activity, but such activity cannot at present be differentiated, and so, though not in principle unobservable as unconscious activities must be on dualist theory, they do present problems of description and justification.

One school of thought does in fact maintain that perceptual consciousness is unanalysable and reject the notion that it is the result of the normally unconscious interpretation of some basic sensing—'Perception is one state of mind or nothing' is James's dictum.[1] This so-called 'Percept Theory' seems to rest merely on the claim that by direct inspection or introspection of perceptual consciousness we are unable to discover any interpretation or any core of pure sensing. This claim seems fairly plausible with regard to sight, though even there it has been maintained that by special efforts of attention the interpretations can be stripped off and the basic sensing revealed; but for hearing at least it could certainly be challenged by Sense-datum Philosophers on the ground that one can distinguish a sound from its source and that the sound is a sense-datum. I would hold, however, that hearing the sound is perceptual consciousness, and so could the Percept Theory. The main objection to the theory is that the traditional accounts of perception have never considered inspection of the contents of perceptual consciousness to be sufficient; they have relied mainly on epistemological and physiological considerations and on the result of various experiments. Even the Sense-datum Theory, which values such inspection, seems to subordinate it to, indeed transform it by, the question: What in view of illusions and hallucinations can I be certain of? In other words the occurrence of unconscious interpretations of an underlying sensing is not really a discovery of introspective analysis but is a hypothesis to explain various facts about perception and illusions. Before we consider such hypotheses and their evidence, however, we must first see what can be learned from simple introspection.

In this discussion I shall deal mainly with what might be called 'normal perceptual consciousness', which occurs in the perception of familiar everyday things. (There are also two rarer types of situation: initial perception or identification, where we perceive something for the first time and find out what it is, and

[1] See R. Firth, 'Sense-data and the Percept Theory', *Mind*, 1949 and 1950.

critical perception, where doubts have been raised about what we are aware of, and so a series of observations and tests may be made.) If we take some normal cases, e.g. when we see the bus coming down the road, watch the cat playing on the grass, hear the garden gate click, or notice greenfly on the roses, several points arise from an introspective consideration:

(i) Perceptual consciousness is immediate and undoubting. There is no inference or interpretation or discursive thought involved; there is no passage of the mind, for we are conscious of the perceived object from the start. Nor does it usually develop into critical perceptual consciousness: one does not question it or weigh evidence, but just accepts that it is the bus or the cat or the gate that one is seeing or hearing. These characteristics have been summed up by saying that perceptual consciousness is intuitive, or rather, as it may be wrong, pseudo-intuitive.

(ii) It is extremely variable in quality: one may look carefully or casually, attentively note features or carelessly miss most of them, one may get a good view or a poor one, see a thing clearly or not. These variations may be due to intra-personal causes such as inattention or short sight, or to external ones such as fog or the distance of the object.

(iii) As the result of (ii) it may later turn out to have been mistaken, however confident it was at the time, and any claims based on it may have to be corrected. Thus it might not have been a bus we saw but a furniture van, or the clicking sound might not have come from the garden gate. But questionings or corrections are part of a subsequent critical attitude; at the time normal perceptual consciousness is undoubting. It is also possible to describe any given perceptual situation in various ways—'I can see a bus', '. . . a vehicle', '. . . something moving', and so on. This may be a gradual reduction of claims due to doubts or queries, i.e. be part of critical perceptual consciousness, but the normal kind is so variable that any one of these statements may be a fair account of a single act of it.

(iv) Perceptual consciousness often seems to issue in some judgment or assertion (perhaps just to oneself), e.g. 'Here's the bus', 'That's our gate, I wonder who it is', or 'I suppose I shall have to spray the roses'. This is particularly noticeable if one is looking carefully or asking oneself what one is seeing, i.e. as normal merges into critical perception, but it is common enough

without that. However, there are also plenty of cases, e.g. in aesthetic contemplation or immediate action, where perceiving does not issue in any introspectible judgment—a point that will be developed later.

These seem to be the main features of normal perceptual consciousness that can be discovered by introspection, and they do not amount to much. And not only is supplementation by other methods required, but these points themselves call for explanation and have given rise to controversy. Thus the third point underlies the Sense-datum Theory, and, as in the tomato example, the initial analysis of that theory seems to involve the progressive reduction of claims until something certain is reached; but we saw reason to challenge that analysis and to offer an alternative explanation of the variability of perceiving. Controversy also extends beyond the explanation of these features, for they themselves may be denied. The Idealists would not accept the first and fourth, but would maintain that perceptual consciousness, even the normal simple and undoubting act, is a form of judging and involves inference. This Idealist view of perception is too important and far-reaching to be ignored, but unfortunately it is part of a general logical and epistemological position so far removed from the present climate of thought that it is not easy for anyone brought up in the latter to state or appreciate it. Nevertheless the attempt must be made if one's study of perception is not to be partial and one-sided.

2. THE THESIS THAT PERCEPTION IS JUDGMENT

The Idealist view involves two closely linked theses, that all sensory cognition is judgment and that perception involves subconscious inference.[1] The first is usually advocated as a corollary from the general claim that all cognition is judgment, or that the unit of cognition is the judgment, but it can be discussed on its own merits. It will be convenient to do this, stating it and outlining some criticisms of it, and then to consider its defence along with the second thesis about inference.

In the thesis that all sensory cognition is judgment, 'cognition' does not simply mean 'knowing' (true cognition), for it may be

[1] Recent defences of these are to be found in C. A. Campbell's *On Selfhood and Godhood*, Lectures III and IV (cf. his article in *Mind*, 1947), and B. Blanshard's *The Nature of Thought*, Vol. I, Ch. II.

erroneous; its meaning is best indicated by listing its modes, the mental acts of knowing, believing, perceiving or apprehending. Even a preliminary remark like this runs contrary to a modern view that knowing and believing are dispositional, let alone the more extreme claim that there are no mental *acts*. But one can reasonably accept some cognitive acts, e.g. of noticing, realizing, perceiving or apprehending, since they are not open to the main arguments for the thesis that knowing and believing are dispositional, not acts. (These are that one does not know or believe at a point of time, but may do so over a long period, and that one may know or believe something while not thinking of it at all.) The claim that all such cognitions are judgments, however, is more than the claim that to perform these acts is to judge, to assert explicitly or implicitly that A is B; it is to judge that something characterizes reality or the objective world. Only when our judgment takes this form does the thing have meaning for us and become cognized. The point is illustrated by referring to the difference between a non-cognitive state, e.g. a reverie, and a cognitive one: in a reverie a man may look at a thing without being properly aware of it, the patch of red in his visual field may mean nothing to him; but in perception the red patch has meaning for him, it is cognized, i.e. judged to be a part of reality, to be a tomato for example.

Perceptual consciousness, therefore, is the judgment that some sensible datum characterizes objective reality, but a slightly different formulation seems to be preferred: though the judgment involved may be stated 'This red datum characterizes reality' or 'This red datum is a tomato', it is better reversed as 'Reality in this part or respect, i.e. *qua* tomato, is red'. This way of putting it is thought to do more justice to perception as an attempt to discover the nature of the real world, and to make clearer the distinction claimed between proximate and ultimate subject. In judging that the tomato is red the proximate subject is the tomato; but this judgment already presupposes the judgment that it is a tomato that is seen, i.e. the acceptance of the tomato as characterizing reality; so reality can be regarded as the ultimate subject of all perceptual judgments.

So far, at least in the unreversed form in which the apparent subject of the judgment is a red datum, the thesis seems very like Price's analysis of the single act of perceptual consciousness as the acceptance or taking for granted that the datum belongs to or

specifies a material thing. Indeed the acceptance that the red datum specifies a tomato seems to the Idealist to be a relatively inexplicit and unconscious judgment that the red datum characterizes a (real) tomato.

But serious differences are involved. Price emphasizes that his acceptance or taking for granted is not a judgment, not even a subconscious one, because it is not discursive and involves no passage of the mind from datum to material thing; both come together before the mind, and so perceptual acceptance is 'prejudicial' (see §§ 4 and 5 below). Secondly, for Price the red datum accepted as specifying the tomato is a sense-datum, a private existent that is itself an object of cognition; for sensing is an act of intuitive awareness, of knowledge by acquaintance. Thus not all cognition is judgment, for some of it, viz. sensing, is immediate acquaintance with the given. But for the Idealist this is impossible: if sensing a red sense-datum occurs at all, especially if it is cognition or knowing, it must involve the judgment that reality is in this respect or part red; it must therefore, as sensory cognition, amount to perceptual consciousness of a red object. This does not mean, however, that nothing can be admitted as a red datum or as given; it is simply that the given cannot be a distinct existent or object of cognition.

In fact a datum has to be admitted by the Idealists as the basis of cognition in order to explain why it is we are obliged by 'extra-logical compulsion'[1] to judge that the tomato is red and not yellow, and in order to account for the 'peculiar quality in being *present*'[2] which distinguishes perceptual judgments from others. But though there is disagreement on the datum, which is one of the obscurities in the Idealist position, they would mostly I think maintain: first, that this datum cannot be isolated, as it is merely supposed in theory and any attempt to be aware of it is itself a judgment; secondly, that the datum is not an independent existent, for 'sensing and the sensed are in indivisible unity'[3]; and thirdly that the adverbial analysis is not acceptable in its normal form—the sensed red datum is not an immediate experience that we can isolate and inspect as a particular event in our life history.

Before proceeding to the main issue, whether perceiving is judging, I shall interpose some comments on these rival accounts

[1] cf. Campbell, *op. cit.*, p. 69.

[2] Bosanquet, *Essentials of Logic*, p. 28.

[3] Campbell, *op. cit.*, p. 70.

of the datum. Price does not himself think that one can in fact isolate the sense-datum so as to have pure sensing without the accompanying taking for granted,[1] but on the basis of his initial analysis he thinks it possible and important to distinguish these two elements, sensing and taking for granted, even if they always occur together, and to treat sense-data as independent existents. We have argued against this analysis and the whole conception of sense-data, and have rejected sensing as knowledge by acquaintance—thus far the Idealists seem on firm ground. And however much one tries to indulge in pure phenomenological observation or to reduce perceptual claims, one seems still to have an indissoluble perceptual consciousness; at least, so far as introspection goes, it is not only that acceptance accompanies sensing but that the two are not distinguishable as distinct activities, nor can the supposed sense-data be isolated from the objects to which they belong. Sensing and accepting are not like a double star whose elements are distinguishable even if in fact always found together; perceptual consciousness seems a unity as the Percept Theory claims. And though, contrary to that theory, I shall suggest that it is the result of the intermixture of sensory and non-sensory factors, the intermixing is such that we cannot clearly distinguish them or conceive what pure sensing would be like.

On the other hand the Idealist notion of a sensory basis of cognition is obscure: we are left in the dark as to how the obligation to judge red rather than yellow is forced on us or how this feeling of presence is brought about; in particular, one wonders how, if we cannot isolate or introspect the supposed datum, we can assert with any confidence that sensing and sensed are in indivisible unity. Thus though they seem right in regarding the occurrence of a sensory basis or sensing as a hypothesis to explain the phenomena of perceiving, the hypothesis can be clarified and made plausible, and the supposed nature of the sensing reconstructed and imagined, only as the result of as wide a psychological investigation as possible into the phenomena, one which will take account of the experimental evidence; this I shall attempt in the next chapter.

3. SOME DIFFICULTIES IN THE THESIS

The main Idealist thesis then is that seeing a red tomato, for example, is judging that a red datum characterizes the tomato or

[1] *Perception*, p. 165.

that reality *qua* this tomato is red. The great difficulty in this is its initial unplausibility; to identify perceiving and judging, or to regard the former as a species of the latter, seems to go flatly against the introspective evidence. The most that can be said, or so it would seem, is that perceptual consciousness often results in judgment, not that it is itself judgment. Admittedly one often says aloud or to oneself 'Here's our bus' or 'There's an east wind today'; but such judgments are the expressions of, supervene on, and are justified by, the perception. They may occur so swiftly that they are virtually contemporaneous with the perception, but they can and must be distinguished from it. As a corollary to this, it seems that, though cognition in the sense of 'noticing' or 'realizing that' may involve judgment, it is because these activities are not pure perception; they are rather the complex event in which judgment supervenes on or expresses perceiving. We only notice or realize that the wind is in the East if we both perceive and judge, but that does not mean that perceiving is judging.

This criticism rests on two main points: that perceiving may occur without judging, and that judgment, as ordinarily understood, has certain characteristic features not shared by perceptual consciousness. The first point can be supported by several kinds of example: (*a*) Where we are simply watching or listening, e.g. watching the cat playing on the lawn and following its movements with amusement, or more important, listening to music. We might think 'the violins are ragged', but often in listening, contemplating or aesthetic enjoyment we seem to be perceiving without any such assertion.

(*b*) Where we are puzzled or curious, e.g. we might ask ourselves 'What insect is that?' or 'I wonder who that is at the door' without consciously or introspectibly judging 'That is an insect that I see' or 'That sound is my front door bell.' Compare also the occasions where one is looking where told to look and waiting for questions or comments, e.g. A: 'Do you see that white cottage across the stream?' B: 'Yes.' A: 'What's the name of the creeper on it?'—B's expectant perception of the cottage here hardly seems to be judgment.

(*c*) When immediate action follows the perception, e.g. we run for the bus or swat an insect or pick up a piece of paper from the lawn. Normally we don't first judge 'That is an undesirable insect' or 'That piece of paper makes the lawn untidy' and then act.

Sometimes in the last case we might say 'Those wretched children leaving their toffee papers around!' (though possibly when already moving to pick them up), but such an exclamation is not a pure judgment, if it is one at all; and when perceptual consciousness does issue in judgment the judgment is often about something different from what one perceives, e.g. 'I shall have to spray the roses', when greenfly are seen, or 'The wind is easterly again' when one sees moving clouds; this also counts against identifying perceiving and judging.

(*d*) An interesting but doubtful example is that of reading: one must in some sense see or be aware of the words, yet one does not judge about them in any way; the dubiety of this example lies in the fact that the whole attention is normally directed on the meaning of the word so that we are not really conscious of the word at all. But how then did we reach the meaning?

Many of these examples will be challenged or reinterpreted. (*a*) is perhaps the most difficult for the Idealist to deal with: he may say that such contemplation is not cognition, not noticing or realizing that something is the case, but one can hardly deny that one is perceiving in such cases—one can hardly listen to a concert without hearing it or watch the cat without seeing it. Hence it would appear that some perceptual consciousness is not cognition or judgment. Furthermore such consciousness may be relatively sophisticated: one must resist the imputation that where cognition is absent perception is virtually nothing, a mere reverie or case of 'Beholding, they beheld in vain, and hearing heard not'. But the other examples are more open to attack: (*b*) will be explained by saying that to ask what insect it is or who is at the door presupposes the judgment that it is an insect or that someone is there. And if we substitute 'acceptance' for judgment to make this more plausible, such acceptance or taking for granted will be interpreted as unconscious or implicit judgment. Immediate actions as in (*c*) may also be put forward as presupposing judgments: if you run for the bus or swat the insect your action is governed by the swift, unnoticed, but nevertheless actual, judgment that 'this is my bus' or 'that is an insect pest'. Judgments about something other than what one actually sees will be classed as unconscious inference, e.g. that the wind is easterly is an inference from the cloud movements and rests on the implicit observation and judgment that the clouds are so moving. And reading will be apprehension of meaning based

on implicit seeing and judging of what is written. This line of reply is merely a development of the expedient Idealists use to explain how judgments are often about specific objects, e.g. 'this tomato is going bad' and not about 'this' or 'reality'. The tomato is the proximate subject because we have already implicitly judged that it is a tomato, and the previous unconscious but presupposed judgment is converted into the subject of the explicit one.

As our immediate purpose is only to indicate the *prima facie* unplausibility of the Idealist thesis, all we need to do in reply is to stress once again that there is no introspective evidence of these alleged 'presupposed judgments'; indeed they are admittedly unconscious or subconscious or implicit or too swift to be noticed. Consequently they must be regarded as an explanatory hypothesis to explain the facts of perception or as consequences of the general thesis that all perception is judgment whose truth must be established on other grounds. We shall consider their defence later but it is useful to see first that they do need a strong one.

The second of these initial difficulties, that perceiving and judging seem to differ widely in general characteristics, shows more clearly that strong arguments will be needed to overcome the initial unplausibility of the Idealist claim, even if that is modified by describing perceiving as 'low-grade' judgment or thought. If we compare a few typical judgments, e.g. 'London is the largest city in Europe', 'Greenflies are pests', or 'The roses need spraying' with the corresponding perceptual consciousness of London scenes, of greenfly or roses, the following differences appear:

(i) Judgment has what one may call intellectual features. This is not merely that the terms 'judgment' or 'assertion' suggest something conscious, explicit, deliberate and considered, with awareness of what one is doing and of the issues involved (so much so that 'unconscious judgment' has an air of self-contradiction); there is also a strong suggestion of consideration, or at least awareness, of the evidence for what one is judging. Similarly as Blanshard admits (p. 116) 'when we say we believe something we are usually aware that this belief must be justified by evidence . . . [but] in perception this consciousness that belief must go back to evidence is quite absent'. Different writers have stressed different aspects of this intellectual character. Thus Price claims that judging is always answering a question, in contradistinction to blind unquestioning taking for granted; also that overt expression

turns acceptance into judgment. Campbell and Blanshard stress that judgment claims truth and has objective reference; it is an affirmation about reality. For Bosanquet also[1] 'the claim of truth marks the minimum of judgment': judgment is necessary, universal and constructive, a mental construction of reality; it expresses what we are obliged to think 'by a necessity operative within the movement of our consciousness' and what we are 'contrained to think in order to make our consciousness consistent with itself'; indeed 'we think that our judgment must be consistent with the judgments of all other persons'.

In most of these ways judgment seems quite different from perceptual consciousness. The normal single perceptual act or acceptance surely possesses no deliberation, no consideration of issues, no awareness or assessment of evidence; to suggest that it has these is to go flatly against the introspective evidence. Likewise the Idealist descriptions of judgment appear wholly inappropriate as an account of perceiving, which does not seem at all like constructing, even on an obligatory plan—finding perhaps, but why constructing? When one sees a greenfly on a rose one surely does not feel obliged to assert anything, feels no necessity operative in one's consciousness. And making our consciousness consistent with itself or thinking of other persons suggests consideration of evidence and other issues foreign to perceptual acceptance. Admittedly, if we give an accurate description of what we see, we feel obliged to say the tomato is red not purple and we expect other persons to agree; we claim truth and make an assertion about reality. But describing what we see, expressing it, is not seeing; it is a different and usually subsequent activity.

(ii) Judging differs further from perceiving in that the presence of what is judged about is not a condition of it. I can *judge* that Moscow is cold or that Julius Caesar crossed the Rubicon without any acquaintance with the places or persons involved, or without having been by the Rubicon in 44 B.C. But I could not *perceive* that Moscow is cold or *see* Julius Caesar while in Glasgow in 1957. It might be objected that perceptual consciousness may occur without the appropriate object being present to the senses, as in misperceptions and hallucinations. But not only is the presence of the appropriate object unnecessary for judgment; it requires no

[1] The quotations are taken from his *Essentials of Logic*, pp. 69, 24, 13, and 27 respectively.

sensory experience or object whatever, not even the vivid imagery of hallucinations. I can judge about Moscow or Caesar with my eyes shut and my ears stopped and with no pictorial imagery.

(iii) When the fallacy or similar error on which false judgment is based is pointed out to us and we realize it, then we no longer feel impelled to assert the false judgment, and if honest we correct ourselves and embrace the new one. But even when a perceptual illusion is pointed out to us and we know it to be an illusion, our perception is unaltered and we cannot correct it to fit the facts. Even though we know that the railway lines are parallel they still appear to converge and meet in the distance; the stick we know to be straight still looks bent if half in water and half not. And this persistence is particularly forcible in the case of the Müller-Lyer and other optical illusions designed by psychologists. We may of course make allowances for the illusion or for perspectival distortion, when we make judgments about the perception, e.g. although phenomenologically the dish on the table looks elliptical, we should if asked its shape say that it is round; or we should correct a less experienced traveller taken in by a mirage. But these are intellectual corrections to our perception; the objects as we see them do not alter with this knowledge, or at least not appreciably.

(iv) Lastly there is a great disparity between perceptions and judgments in that a great variety of instances of the former can be accommodated by one of the latter. 'What a beautiful girl!', 'That's a jagged peak!' or 'The colouring on the hillside is very fine' can each apply to a host of different objects of perception and a range of perceptible characters. This is much the same point as that which is generally admitted to have destroyed the equivalence claim of Phenomenalism. Just as one material object statement is vague and indefinite enough to cover a range of perhaps conflicting sense-datum statements, so one judgment, even a silent one, can match a host of perhaps conflicting perceptions. If perceiving were judging, one would expect differences in the content of the perception to be matched by differences in the judgment; but if any judgment that occurs is merely a supervening statement of what one is perceiving, then there is clearly no necessity to describe in full detail what we see, and general formulations which can fit a range of cases are of obvious convenience.

4. AN IDEALIST DEFENCE EXAMINED

Despite this initial unplausibility the Idealist thesis has been strongly maintained. Partly this is on general logical grounds outside our present scope, and partly I think because it is not easy to distinguish perceiving from its supervenient judgments in what I call transformed perception and discuss p. 263. But there are two important arguments for the thesis which must be examined here: first, that perceiving is true or false, and only judgment can be that; second, that perception involves inference or interpretation and the conclusion of such a process must be a judgment.

The first of these is explicitly stated by Blanshard in *The Nature of Thought*: 'They [the Idealists] have seen clearly the crucial fact that perception may be true or false, and have sought a theory that will comport with it' (p. 99) and 'What judgment means is the assertion of something as true, and the possibility of error is taken as the best test of its presence' (p. 107). Further, any perception has within it the logical features of a judgment, i.e. 'something asserted, i.e. a predicate, and something asserted about, a subject'; these may be very rudimentary or vaguely distinguished, but nevertheless are there, otherwise it would not be true or false (pp. 107–8). This point is further developed into a counter-attack against Price for denying that perceiving is judging and yet admitting that what is taken for granted in perception is that so and so is the case—a set of propositions. Broad likewise is criticized for introducing the logical features of judgment under another name, for he speaks of 'the conviction that this particular something is not isolated and self-subsistent' as present in every perception.[1]

Now the 'crucial fact' on which this argument depends seems to me to be not a fact at all. Perceiving may be proper, correct, clear and accurate, or indistinct or incorrect, but not true or false. I can see properly or indistinctly, hear correctly or not correctly, but I cannot see truly or hear falsely; I may be mistaken *about* what I see or hear, but I do not see mistakenly. This is not just a verbalistic quibble; it is once again stressing the Idealist confusion of seeing with the supervenient statement or description of what we see. Even a judgment is only true or false when it is a

[1] On p. 94 and p. 95 n. of his book Blanshard quotes and criticizes Price, *Perception*, p. 166, and Broad, *The Mind and its Place in Nature*, p. 151.

proposition; judgment as a mental act is surely only correct or incorrect. Truth is a relation between statements or propositions and the world they are about, or perhaps between them and other propositions, but not between activities and the world. Hence it is the propositions to which perception may lead, the statements of what we see, that are true or false; but perceiving itself is correct or proper, terms which apply equally to other activities which are much less likely to be confused with judgment, e.g. playing the piano, serving at tennis, tying reef knots or dealing cards. This is hardly a complete answer since we shall have to investigate the mistakes in perception to see how they can be explained without supposing true or false judgments or takings-for-granted within them; but we can at least show here by these examples that many activities are liable to errors or mistakes without being forms of judging, and without showing even rudimentary assertions, subjects and predicates. Judgments may occur in the planning of these other activities or in post-mortems on them ('It's F♯ not G' or 'X's backhand is weak'), just as they may supervene on perception, but they are not integral parts of the action. As to Blanshard's counter-attacks, Price has in anticipation denied that taking for granted is itself an act of judging. It is 'the act whose expression in words, if we did express it, would be the statement A is B . . . (Only, if it were actually expressed, it would not be a taking-for-granted. When I say that A is B, I am *judging* that it is so, and am no longer taking it for granted)' *Perception*, p. 167. The point is similar to mine about judgment: though the normal expression of what is accepted or taken for granted is a statement of the form 'that A is B', this expression of the taking for granted is an extra and differing activity supervening on it, just as judgments or descriptions of what one sees may supervene on perceiving; but it would be a mistake to read back into the taking-for-granted or perceiving the features of the supervenient activity. A similar reply could also be made concerning Broad. I feel however that, perhaps owing to the difficulty of expressing his view, Price does sail dangerously near to Idealism, but a full consideration of his position is more suited to a discussion of the second argument for the Idealist thesis.

This argument is that perceiving, as the conclusion of an inference, must be judging, and by far the fullest recent exposition of its basis, the claim that perceiving contains an inferential

element, is given by Blanshard. And yet it is one of the surprises of his work that despite his fanfare of Idealist trumpets and Price's equally determined counterblast, the two treatments of perception seem to conceive the problems in much the same terms and to be in many respects hard to distinguish. Thus having said that perception is judgment or belief or something very like them, Blanshard admits that some of the conditions ordinarily present in belief are absent, e.g. consciousness of the need for evidence; he quotes with apparent approval Price's argument that therefore it is more like 'being under an impression that' than belief, and seems to accept Price's name 'taking-for-granted' for it. Similarly in introducing the whole question Blanshard invites us to consider the difference between what is 'given in sensation' and what as the result of a 'supplementary process' of 'reference or acceptance' we are perceptually conscious of. He takes the example of perceiving a plane:

'Suppose that, glancing up at the sky, I see a tiny cross-shaped object and hear a certain pervasive hum. I at once recognize an aeroplane, and if questioned, I should say I "perceived" it. But how much have I actually seen or heard? I have seen little more than a speck, and have heard nothing but a peculiar hum. Now to say that a speck plus a hum *is* an aeroplane would of course be absurd. . . . Yet if the speck and hum are the only elements in the experience, how could I say I perceive an *aeroplane*? It is obvious that in perception something besides what is given in sensation is involved, and that in many cases this something else includes nearly everything of importance' (*op. cit.*, p. 81).

Like Price he goes on to claim that we take this speck and hum to belong to a plane; but he does not refer to the speck and hum as sense-data, and would hardly admit them as such; and he asserts that this taking or acceptance is, or is based on, a form of inference.

As his argument develops he qualifies the nature of the inference involved. It is not inference in the full sense because it is not insight into necessity, but it is nevertheless inference or reasoning, for much reasoning, e.g. in science, is not logically necessary. One is recommended to regard inference generally 'as a process of arriving at judgment from grounds . . . the inference may then be conceived as a passing directly from the datum given in sense to the accepted presence of the thing, or of the unsensed parts of the thing' (p. 89). This process is not explicitly syllogistic, but is

implicitly and in essence so when we are perceiving material things. Indeed it is not explicit or fully conscious at all, but it is 'implicit thinking'. By 'implicit' Blanshard does not mean that it is completely unconscious like our knowledge of something we have learnt and could recall but are in no way thinking of; the word is used in the sense in which one says one knows implicitly or has implicit grounds for thinking that A is B: 'In such cases there is pretty clearly something present in experience which serves as ground, even though it may be very difficult for the judger to say what it is. One may be aware of something and use it as a ground without singling it out for full and specific attention' (p. 96). The grounds of inference can normally be made explicit later, and though he thinks it is wrong 'to make the presence of grounds depend merely on their conspicuousness or one's skill in eliciting them' (p. 98), he seems to suggest that where grounds can be elicited they must have been present implicitly. It is this, together with the first defence (that perception is true or false), that makes him want to say that the taking for granted, the passage of the mind from the given to the thing, is inference or thought and not just a mere jump or passage without any rational process.

There are several difficulties in Blanshard's position. The first is, how subconscious or implicit is the inference meant to be? He suggests an awareness of grounds without full and specific attention, but this makes it too close to explicitness and consciousness. It is not so much that we do not single out the ground for full attention as that we do not notice or distinguish it at all: it has no part in our consciousness and in fact we are not even conscious of the need for it; elsewhere it seems suggested that these grounds are 'unnoticed' but not 'unexperienced', on the analogy of breathing: 'There are many sensations connected with breathing for example, that we do not ordinarily *notice*, but it would be difficult to say that we are not experiencing them at all' (p. 104). He also refers to the discussion in his Chapter IV where it is claimed that there is some subconscious awareness to explain for example our realizing that a clock has stopped ticking. It would seem then that for Blanshard 'implicit' encompasses 'unnoticed' and 'subconscious' (though not 'fully unconscious'), and there thus seems to be some equivocation, especially between 'awareness without full attention' and 'not noticing'. There certainly seems more difference between them than between 'not noticing' and

'fully unconscious of'; I should have thought, for example, that we were normally quite unconscious of our breathing, not aware of it at all, and so, while we admittedly do not notice it, we do not at the same time manage to experience it. And it is arguable that there is a similar full unconsciousness of the alleged implicit grounds. In many of Blanshard's examples the person may not even on reflection be able to distinguish the grounds, e.g. tell what it was about the weather that made him think that a storm was coming or what he observes in certain people to make him judge them untrustworthy or dislike them. Blanshard admits the woman's intuition and the dislike of Dr Fell, but quotes with approval the statement that such feelings, suspicions and hopes are groundless only in the sense that the ground cannot be given or is a bad one; they are not really without a ground 'for there always is one' (p. 97). But the point to be stressed here is that, whether there is a ground or not, the person concerned cannot give it and so must be fully unconscious of it; the ground cannot have been merely implicit or subconscious in the sense of 'object of awareness not fully or explicitly attended to'.

Secondly, the question of whether perceiving is judgment based on inference is not settled by the fact or discovery of grounds. There is always the danger of rationalization, of subsequently inventing or discovering grounds which were not at the time appreciated and used as grounds; this is usually found in the justification of emotionally based conduct, but perhaps Blanshard is vicariously rationalizing in offering the percipient grounds he might have used but did not. Again, not only judgments may have grounds: in Blanshard's own example the grounds of *feelings* of dislike, of hopes and of artistic taste, are put forward, and so perceptual consciousness may have a ground without being a judgment. In fact, however, when we seek grounds or justification in perception it is surely the *supervening* judgment or assertion that is questioned and defended: 'Why do you say it's an east wind?' 'I can't see the bus, what makes you think it is coming?' And the answer would be a description of the perceptions (not things 'given in sensation') on the basis of which the judgment was made: e.g. 'Because the clouds are moving out to sea' or 'I saw it on that bit of road beyond trees'. But we do not think the perception of the clouds or the bus require justification or grounds—they are the grounds.

But the real objection is not merely that from the fact that grounds exist or can be discovered later one cannot infer that the percipient used them as grounds or was at all aware of them; it is that such a conclusion will be false in fact as well as invalidly drawn. To be aware of a ground as a ground and use it as such, one must at the same time distinguish it from the consequent; thus to use the speck and hum in Blanshard's example as a ground for inferring an aeroplane, we must distinguish them and distinguish them at the time. But do we do this? Sometimes we do and may say, 'You see that speck over the church tower moving to the right? That's the Edinburgh plane!' or 'That patch of red down there is Jones's cottage roof'. But then we are apparently doing just the thing that he says is absurd, namely saying that the speck *is* an aeroplane. But this is too common to be absurd, and for two reasons it has not the absurdity he supposes: first, the judgment that the speck is an aeroplane is one supervening on perception and not part of it; one is *perceiving* the speck, seeing it as a public moving object, and is not aware of it as a sensation or as given in sensation—to say a sensation was an aeroplane would be absurd. Secondly, it is really a judgment that what looks like a speck, or is seen as a speck, is an aeroplane, not that an actual speck is one. In referring to the speck we are speaking phenomenologically and saying how the object looks, whatever it really is, but it would be pedantic to make this clear by saying 'speck-looking object'. ('Patch of red' is slightly different, as we may mean 'red object' and not just 'red-looking object', even though strictly we should not.)

Such judgments do admittedly involve a distinction of elements, speck and aeroplane, patch and roof. But one can hardly call these ground and consequent, or say one infers the one from the other, if they are identified. And even if one says that one infers the presence of the aeroplane from the sight of the speck, one can still say that the speck (or speck-looking object) is perceived and not 'given in sensation'. But the main point is that however useful it is to distinguish speck from aeroplane or patch from roof when pointing things out, when giving phenomenological descriptions or when offering epistemological analyses after the event, it is difficult to believe that in normal perceiving we ever distinguish the two. We should normally be perceptually conscious just of the aeroplane or of the red roof of the cottage. Even Blanshard admits 'When we perceive an orange, we do not first catch the sensory

cue and *then* pass to the conclusion that an orange is there; cue and conclusion seem to present themselves together and blend in a single percept.'[1] He regards this as compatible with passage of the mind and with inference from one to the other, but it would seem more correct to say that they are so blended that the percipient does not distinguish them and so cannot infer one from the other. Distinguishing orange colour patches from the fruit or specks from aeroplanes is a procedure for special purposes; it is not normally part of perception, yet without it inference could not take place.

5. ALTERNATIVE ACCOUNTS OF PERCEPTUAL CONSCIOUSNESS

In his treatment of the problem in *Perception* Price makes quite clearly and more than once the point that I stress here, namely that percipients do not distinguish the alleged given from the object of perceptual consciousness (though he would hardly admit the 'alleged'). Thus 'What happens is not that we identify them [the sense-datum and the entire thing], but that we *fail to distinguish* between them' (p. 168). Or again, 'The two states of mind, the acquaintance with the sense-datum and the perceptual consciousness of the tree, just arise together. The sense-datum is presented to us, and the tree dawns on us, all in one moment. The two modes of "presence to the mind", utterly different though they are, can only be distinguished by subsequent analysis' (p. 141). This being the case, it seems to me not only that the sense-datum or given could not be used as a cue or ground for inference, but also that it is misleading to speak of taking for granted that the datum specifies the material thing or to say that we 'jump straight from the awareness of the one to the thought of the other'.[2] All these suggest discursive thought, a passage of the mind from A to B, when there is admitted to be no such passage at all.

Such statements in fact suggest that Blanshard and Price are agreed about the nature of the process but merely disagree as to the best name for it. At any rate, having quoted Price's statement that what is taken for granted is a set of propositions, Blanshard then says (p. 95 n.) that he can seen no essential difference between

[1] *op. cit.*, p. 96, cf. p. 87.

[2] See the account of 'being under the impression that' with which Price opens the discussion, pp. 140–1.

this process and his 'implicit judgment'. And indeed one gets the impression that while both agree that the datum and what is taken for granted (cue and conclusion) present themselves together, Blanshard, stressing that what is taken for granted is propositional and true or false, thinks that the process should be regarded as inference, but Price, being more impressed by the lack of introspective evidence of thought and by the fact (agreed by Blanshard) that the doubts and awareness of the need for evidence which usually characterize belief and judgment are absent, advocates a different name. Perhaps then as there is something to be said on both sides one should decide the honours are even and speak of perception as quasi-judgment.

But this would be a false impression and unwise conclusion. For besides differences about the datum and stress on the indistinguishability of datum and object, there are two important features in Price's description of a single act of perceptual consciousness where he diverges from the Idealists, and where we can follow him. These are his contentions that it is pseudo-intuitive and that it is pre-judicial, and they bring us back to the introspective features of perceptual consciousness, which we can now accept with more confidence after our criticism of the Idealist thesis. 'Pseudo-intuitive' indicates that such consciousness is not discursive but is immediate like intuition, and yet may be erroneous: we are not conscious of any inference or judgment or passage of the mind within it, and the object comes before us in an effortless way without doubt or questioning. Price meets the claim that there is implicit inference by saying that it confuses the conditions of perceptual consciousness with that consciousness itself: no doubt we could not see a gladiolus as a gladiolus or a certain insect as a greenfly without previous experience, but it does not follow that we are now performing any intellectual acts (of inference from such experience or even of synthesis) or that the former experiences are now being recalled. 'All that follows is that the disposition set up by the past going-together of several different kinds of sense-data is a condition of my present perceptual act' (p. 155).

The contention that perceptual consciousness is pre-judicial is offered as an explanation of its pseudo-intuitive character. Though describable as taking for granted, it is not judgment because it is unquestioning, not an attempt to answer a question, and because

it provides the subject or theme to judge about. 'For what I perceptually accept . . . always falls *as such* on the side of the subject thought about. In so far as it is merely the object of a *perceptual* act, it is simply something which is "there for us to think about", something about which we then proceed in a further act to ask questions, or to attribute characteristics to it' (p. 162). The Idealist also recognized the way the perceived object, the tomato or table, seems so often to be the subject of the judgment, but explained it as being merely the proximate subject accepted as such on the basis of earlier judgments. But this is open to Price's criticism of confusing perceiving with its conditions. Even if there is a present judgment due to or enabled by past judgments, that does not mean that they occur now: if we judge 'This table needs polishing' there is no reason to suppose that the unconscious judgment 'This is a table' occurs or is implicit. It is unnecessary because perceptual consciousness of the table in which the table comes directly before the mind, already provides us with a subject to judge about; nor of course is there any introspective warrant for thinking that judgments like 'This is a table' go on in such circumstances.

But although we can benefit thus far from Price's account, there seem to be two further elements in it which are misleading or mistaken. They are that sensing a sense-datum is an element within perceptual consciousness—even if it never occurs on its own it can nevertheless readily be distinguished within the whole—and secondly that perceptual consciousness is the taking for granted that the sense-data belong to a material object. The first seems to be introspectibly false and to be based on an initial analysis and supporting arguments which I rejected in Chapter II. The second, with its corollary that perceiving is propositional—what is taken for granted is a set of propositions—is dangerously close to Idealism and misleading, for it seems to suggest or even require that we distinguish the datum and object at the time and that there is a passage of the mind from one to the other. Even with Price's qualification that we take for granted what, if we expressed it, would be proposition, this danger still exists.

Furthermore if we may be guided by the expressed supervenient judgments or exclamations, what we take for granted, in sight at least, is not that the datum belongs to or specifies the object, but that it *is* the object; we accept that the speck is the aeroplane, the

red bulgy something is the tomato, the bush looming out of the fog is a man, the wax imitation is a real tomato, and so on. For the corresponding remarks of the percipient would be 'That's the London plane', 'What lovely tomatoes! Did you grow them yourself?' 'Oh Harold! There's a man standing there!' or something similar. The suggestion that we accept the datum as belonging to the object is not only false, for if anything we identify them, but creates a wide and artificial gap between them.

But whatever content we assign to the acceptance, we should note that to assert that the percipient accepts or takes for granted something is to adopt a superior position, either using one's knowledge of the actual situation as an outside observer or—if the percipient is oneself—being wise after the event. This wisdom may be the result of subsequent experience, such as finding that it really was wax or a bush, or it may be the product of initial analyses of the Pricean type, critical analyses which can only be applied to normal perceptual acceptance in the past—if applied to the perception of the moment they turn it into critical perception and mean one is not taking anything for granted. Regarded then as descriptions from a superior position, the statements of what is accepted are of two main types: those which say what the object was (he took it for granted that the wax was a tomato) and those that are phenomenological and studiously non-committal, e.g. 'He took it for granted that the red bulgy something was, or belonged to, a tomato'. Assuming one knows the facts they could both be made equally well and equally easily; not to know the facts does not accord very well with the superior position one seems to be adopting, but even after a Pricean analysis at its most Socratic one would presumably admit that it is only the describer's ignorance that prevents his being equally able to adopt the first kind of description—the red something must really be one of several possibilities, wax, tomato, or hallucination, even if he does not know which. As the two descriptions are normally equally valid and equally possible, there seems no justification for treating the two subjects of the 'that' clauses as radically different types of entity. The 'red bulgy something' that may so easily be substituted for 'wax' in the clause is presumably another description of the actual object, the wax. It would at least seem odd that the red something should be something entirely different, a sensory datum or given, a private experience. One cannot suppose any experience

corresponding to the wax, neither percept nor sense-datum, for if the percipient were aware of wax or wax-like datum, he would not accept that it was a tomato. Why then should one suppose an experience or sensed datum corresponding to the one kind of superior description but not the other? The answer will no doubt be that this is all quite irrelevant: that the percipient was aware of a red datum, but not of wax, and accepted that it belonged to a tomato, is discovered by analysis of the perceptual act. But what kind of analysis can it be? As we have stressed, the percipient does not distinguish alleged datum and object: he is conscious of a tomato or a plane or a man; he is not conscious of a red bulgy something as such, i.e. as some thing potentially distinct from a tomato, and the possibility that it is not a tomato but some other kind of red thing never occurs to him; similarly he is not conscious of the wax or bush as such, otherwise he would not be deceived. So if we are trying to describe the percipient's experiences we are limited to 'He was perceptually conscious of a tomato (or plane, etc.); to say 'He took for granted that the wax (or red object) was a tomato' is to abandon that for the superior position of wise-after-the-event description; to suppose a sensed or experienced datum is to confuse the two.

My criticism of Price's account then is that he (or for that matter Blanshard) reads back into the percipient's consciousness distinctions between datum and object which, even if valid, can only be made by a subsequent or independent analysis; and he is forced to bridge the gap thus artificially created by takings-for-granted that misleadingly suggest actual judgments and propositions. One might try to avoid the latter fault by rephrasing one's description of the consciousness, and this is worth doing anyhow for even quite legitimate superior descriptions which can be made without implying Price's theory, e.g. 'He took it for granted that the wax was a tomato', have this misleading suggestion of judgment—misleading, for if he judged anything it was that it, i.e. what he saw, was a tomato, not that the wax was a tomato. In *Thinking and Experience* Price speaks of recognition; thus the percipient may be said to recognize the speck as an aeroplane or the red round something as a tomato. But recognition can also be expressed propositionally—'He recognized that the speck was a plane'. Also it may suggest passage of mind from sign to significate and is difficult to apply to error, for 'He mistakenly recognized the wax

as a tomato' is odd. 'Identify' might be better, but 'He identified the speck as a plane' still suggests separate consciousness of speck or wax. Perhaps the best would be 'see as' or 'take for': 'He saw the speck as a plane', 'He took the wax for a tomato'. These truly suggest that he was conscious only of the aeroplane or tomato without implying a propositional consciousness, and enable us to contrast his consciousness with wise-after-the-event descriptions of what was really there or with the products of phenomenological analysis. Their disadvantage is an imputation of mistake on his part, so one might use 'recognize as' or 'see as' according to circumstances.

Despite these disagreements I have supported three claims that Price makes about perceptual consciousness, that it is pseudo-intuitive, that it is pre-judicial, and that datum and object are not distinguished by the percipient. The first arises out of the introspective evidence, but needs supporting by the further objections which I made to 'implicit inference'; the second is very similar to the point that judgments supervene on perceptions but are not identical with them, though I suggested other reasons for distinguishing them from perceptions than the one that they always answer questions, and the third has been accepted so far as its negative side is concerned, that perceptual consciousness is a unity in which the percipient makes no such distinction at the time. But I should wish to go further and say that he cannot even by effort of introspection or retrospection distinguish datum and object within the consciousness. Hence, although a valuable suggestion is contained in Price's statement that the sense-datum is presented to us, and the object dawns on us, all in one moment, it cannot be whole-heartedly accepted because it suggests the possibility of subsequent distinction. The most it seems to me that can be said on introspective grounds is that the unitary perceptual consciousness seems to present two facets, a sensory and a conceptual one, or that it has both a sensory and a conceptual flavour or feel, as it were. It does not seem to fit wholly or neatly into one of the two categories, sensation and thought. Whatever its value in logic, it seems to me that any firm distinction of these two categories is a mistake in psychological analysis, at least if it means treating them as separate mental states or activities that cannot merge into one. On the outer aspect they are, as I have suggested, both brain activity, different species of brain activity or activity in

different areas perhaps, but readily combinable one would suppose; on the inner aspect there might seem more difference, but for many people the only inner aspect of thought is imagery of some sort, and there would seem to be more difference in kind within thought, i.e. between verbal or motor and pictorial imagery, than between imagery and sensory experience. It seems then that perceptual consciousness cuts across the traditional distinctions; it is, in one unitary and introspectively indistinguishable whole, both sensory experience and recognition of an object, both seeing and seeing as, both awareness and identification.

But analysis is not the only means of elucidation. One may offer a genetic hypothesis and attempt to explain perceptual consciousness by suppositions about how it came to be what it is: one could say that it is the product of the merging or fusion of two elements, a sensory and a conceptual one—elements not co-present for analysis but combined and fused. Though the product only is known to us, and the elements and the fusing are hypothetical, this would have the advantage of explaining not only the two introspectible facets, the double feel or flavour, but also the possibility of error. Misperceptions and erroneous 'recognitions' need not be regarded as misjudgments, as the wrongful joining of subject A with predicate B; and one need not presuppose the distinction of A and B as separate introspectible elements and be in the danger of suggesting a passage of the mind from one to the other. All that is required is the fusion of the wrong conceptual element with the sensory one due to the object, but a fusion that is below the level of consciousness so that we are aware only of a unitary product. I propose to refer to the supposed sensory element as 'sentience', and would thus say that mistaking the wax for a tomato is due to this unconscious merging of the sentience due to the wax with the thought of the tomato; and the recognition of the speck as an aeroplane will be a merging of the sentience corresponding to the speck with the thought of an aeroplane.

Though one can hardly claim to characterize the non-introspectible elements of perceptual consciousness, one might hazard a guess as to what they might be if introspectible, in an attempt thereby to make the hypothesis a little clearer. Sentience is an unconscious activity but its inner aspect if available would resemble the phenomenological look of the object, the red round something or the speck, though this will be subject to much qualification in

view of the other factors which, it will be suggested in the next chapter, also modify sentience. The other element is more difficult to characterize owing to the elusive and variable nature of the inner aspect of thought. But from consideration of the difference between phenomenological observation and ordinary perception, one might suggest it is largely a naming or verbal identification, or perhaps less than that, a sort of feeling of familiarity with a vague feeling that one could name or make judgments about the object or could act appropriately to it as an object; but according to person and circumstances there would also be some degree of imaginative supplementation or imagery as well.

Not only is any precise characterization of the supposed elements impossible, but 'merging' and 'fusing' are only metaphors; indeed one might equally say not that sentience and thought fuse but that sentience is modified by a conceptual element, provided that is not held to be a way of saying that we consciously interpret sentience. Presumably if these postulated unconscious activities are discovered it will be on the outer aspect of brain activity, and they will be stated in the terms then thought appropriate to the merging or interaction of patterns of brain activity. The statements in terms of modifying sentience will be found more convenient in the next chapter, in which I develop the present suggestions into a Sentience Hypothesis intended to explain other features of perceptual consciousness besides its liability to error.

These further features, to which we must now turn, have not had the attention they deserve in philosophical discussions of perception. They play a large part in psychologists' treatments of the subject, and some have only been brought to light by psychological experiment. Others, however, are obvious enough, and so their comparative neglect is difficult to understand.

CHAPTER NINE

THE PSYCHOLOGY OF PERCEPTUAL CONSCIOUSNESS

I. ATTENTION AND THE SENTIENCE HYPOTHESIS

Some terminological points must be made before we examine the psychological evidence. In the detailed discussions found in text-books on psychology constant reference is made to the 'stimulus' or 'stimulus properties', and comparison is made between the properties of the object and of the stimulus. But these terms are ambiguous. Strictly the stimulus should be the pattern of light waves striking the eye, the pin whose point we feel, or some similar immediate cause of the activation of the sense organs; but it is also used for more remote causes, e.g. the external object from which sound or light waves travel to the percipient. In both these meanings it is an outer aspect word belonging to the scientific account of perceiving. Some psychologists, however, also speak of the percipient's observation of stimuli or attention to them, and in such passages 'stimulus' is being used as an inner aspect word referring to a sensory datum, not a physical object. Mixture of aspects is thus added to the general ambiguity. Hence I shall use 'stimulus' as little as possible, and then only for the immediate cause, for light waves and the like.

I shall also introduce a new term, though I do not wish to suggest it denotes sensory data; I shall speak of 'percipienda' or 'theoretically apparent properties', meaning those properties which, from our knowledge of its nature and position and of the intervening media, it is estimated that the object should appear to have. Thus if a square table is observed from some distance away, its theoretically apparent shape by the laws of perspective will be a trapezus or diamond-shaped parallelogram according to the position of the observer. This shape will also appear on a photograph from that position, and its angles can be measured on the print. The observer, however, may see the table as square and not as trapezoid or diamond-shaped, and I shall use the term 'percepta' or 'actually perceived properties' to refer to how the object actually appears to an observer.

Now in this chapter we shall be greatly concerned with the various forms of discrepancy between the percipienda and percepta of a given object. These differences are particularly clear when one type of property changes while the other does not, or at least not to the same extent. Thus the percepta may vary while the percipienda do not, as in recognition or attention, while the converse is true in object constancy. I shall illustrate these discrepancies and suggest that they may be explained on the Sentience Hypothesis as due to the modification (selection, interpretation or adjustment) by the percipient of a basic awareness or sentience, the content of which corresponds to the theoretically apparent properties provided that his sense organs are not defective. (Even if they are, a similar modification occurs.) This basic sentience may be closely approached, if not attained, in certain circumstances, but it and the modifying of it must normally be regarded as unconscious activities postulated to account for the discrepancies. The modificatory activities cover such a wide range that no one term is satisfactory for them. Traditionally 'interpretation' has been used, but that has the disadvantage of suggesting that they are intellectual; some indeed do seem to involve awareness of meaning, but they range down to normally unconscious adjustments which can be achieved by birds or even fish. 'Adjustment' which I once favoured is too narrow, while 'organization' is too reminiscent of Gestalt theory and may suggest deliberate intellectual activity. So I have adopted the colourless 'modification'.

The first group of phenomena to be considered consists of instances of attention and selection in perception, situations where the percipienda remain constant so far as is known while the percepta show great variation. This is a group particularly worthy of study because in the past philosophers have greatly over-emphasized the passive features of perception, its 'givenness'. Locke even went so far as to say the mind was merely passive in perception, and recent if less extreme versions of this mistake have produced perplexities about the 'given' and the 'gappiness' of sense-data. In my earlier criticism of these errors (in Chapter IV, § 1) I appealed directly to the voluntary play of attention and selection, whereas in the present context it is the involuntary processes they reveal that are of most interest. For in much voluntary attending or selecting, e.g. when one turns to look out of the

window or picks up a book to examine it, it is probable that with the movement of the head and change in focus of the eyes the percipienda vary almost as much as the percepta. But if we reduce head and eye movements to a minimum and look carefully at some object or part of some scene, or if we generally compare careful and casual perception of the same thing, the contrast seems greater than can be explained by eye focusing. Thus if we look closely we become aware of, for example, spots of dirt on a piece of paper, faults in the weave of a cloth, patches of moss or of varying colour on the bark of a tree, the lamp-post at the corner, the puddle, or the painters at work across the road, None of these may have been noticed when we looked less carefully at the paper, the cloth, the tree or the various parts of the street. From the evidence of other observers or of later events, from photographs or recordings, from the operation of our attention when it is drawn to the scene, we are quite sure that the features concerned were percipienda, were there to be seen, even when not noticed. There seems no reason to doubt that they were reproduced in or had correlates in the pattern of light rays reaching the eye and so presumably in the pattern of nerve impulses reaching the brain. But they fail to be perceived unless we look carefully and make a special effort; which suggests that some normally unconscious or involuntary selection and rejection of material is going on, so that we only see the main features, or what we are 'primed' to see, unless we deliberately interfere and observe attentively.

This suggestion is confirmed if we attempt to discover factors influencing notice or lack of notice. Some are clearly due to the object, e.g. the suddenness of a sound or a flash of light or a movement will attract attention; but these do not concern us here. But there are subjective factors which result in two different persons, or the same person at different times, seeing the same scene yet noticing different things. One of these is expectant attitude or preparatory 'set' or 'priming', a state of readiness for certain features, e.g. when you go out looking for a pillar box or a café, or are expecting a visitor and so hear the click of the garden gate. This can often work unconsciously if one has been unaware of the readiness or has forgotten all about it—it occurs even in sleep, for a resolution to wake early favours hearing the alarm clock. A hackneyed example of this factor is the difference between normal and proof reading of a given passage; in the former, being only

interested in the sense, one will fail to notice many errors which will be detected when looked for; and of course the difficulty is to prevent interest in the sense, or habits of concentration on it, from overcoming the desired 'proof-reading' set.

Habits of attention provide a further and numerous group of examples. Thus the experienced motorist will notice traffic lights and signs or hear a warning note in the sound of the engine, while his passenger may not. If an architect and a naturalist go for a walk and look at the same house, the one will notice blocked ventilators or leaking gutters, while the other will notice the shrub against the same wall or a bird perched on the gutter. (The same percipienda at first lead to different percepta and percipienda.) Successful discrimination of detail seems particularly dependent on past experience and interest. A trained detective can notice differences and similarities in finger prints, or a scientist detect significant features of microscope slides, which the layman would fail to observe even with the best will and closest attention. It is notorious how bush trackers notice features and discriminate between tracks; and we are told of primitive tribes who have numerous words for distinguishing various patterns of animal markings which a townsman could scarcely begin to differentiate and classify. As well as habits and experience, preoccupation and emotion have notorious effects on attention, as in the absent-mindedness of the scholar thinking out a problem or the lover apart from his beloved; conversely, though this brings us back to interest, the hungry man will notice food most readily, and to the angry or hostile one all the bad points of his *bête noire* are clear and conspicuous.

From these and many similar situations it seems that the percepta may vary greatly while the percipienda remain relatively constant; we select and sift from the latter in various ways as the result of expectancy or set, emotion, interest, experience or habit, sometimes consciously but more often not. Yet if selection for attention occurs, there must be something from which the selection may be made. In a sense of course we select from the features of the scene or object before us, but we can only do this if these features exist *for us*, if we are somehow aware of them or they have some reproduction or effect in us; and so the recognition of unconscious selection favours the postulation of an unconscious sentience in which all the details of the scene are dimly reproduced and from

which a selection is made that will appear in consciousness and be fully perceived.

A similar conclusion is suggested by the attentive phenomenological observation sometimes called 'perceptual reduction'. By this procedure we concentrate our whole attention on the look or sound of an object in order to observe it, and exclude consideration of the identity or nature of the object that is looking thus or is the source of the sound. If this is done for sight we become aware of a flattened, but not wholly flat, scene which contains previously unnoticed patterns of light and shade, shadows of unexpected hue, graining or other properties of the texture of the surface, and so on. These are details that have to be discerned and painted by the artist if he is to achieve any degree of realism, and indeed one might describe the results of this reduction as 'the painter's view'. These details appear on a photograph as well as on a painted picture, and it is difficult to resist the conclusion that they are 'there all the time'; though normally unnoticed, they form part of the content of the postulated sentience and contribute to our seeing things with the depth and vivid colour that we do. There is no evidence that the process of reduction alters the object or scene itself, but a more serious objection would be the possibility that focusing or eye movements during reduction alter the percipienda. No doubt some change of this kind occurs, but its significance here cannot be very great. A similar reduction without focusing can occur in hearing and enable us to pick out the instruments in an orchestra for example. As for sight, the details appear in a photograph and realistic picture, and, as they are conditions of a life-like reproduction, they probably also condition and underlie normal perception of the actual scene.

Yet although we may by such reduction approach a totally unmodified sentience, we can probably never attain it; for several kinds of modifying activities are involved, and only one set of them can be stripped off by attaining the painter's view. The very suggestion of unconscious and unobtainable sentience is so paradoxical, however, that we should do well to stop and consider it before proceeding to the other discrepancies between percipienda and percepta that likewise seem to require it.

Unconscious sentience would be scorned as an outright contradiction were we not by now inured to unconscious wishes and fears; at best it is a difficult notion, especially on the usual dualist

view of mind. But we have already seen how unconscious mental activities can better be understood and accommodated on a monistic Identity Hypothesis. Whether a given event of a person's 'mental' life, which is observable or conceivable under the aspect of brain activity, also presents an inner or conscious aspect, depends on some hypothetical factor—its complexity or the amount of brain involved perhaps. Hence unconscious sentience must be supposed to involve the same core of brain activity as would conscious sentience, but without the unknown added factor that would give it the inner aspect. And as it is impossible at present to differentiate and describe the detailed variation of brain activity forming the outer aspect, it is necessary, as in the case of other unconscious activities, to describe the postulated sentience in the terms that would be used of it if it were conscious.

But the supposition of unconscious selecting or modifying or unconscious sentience has the further difficulty of sounding as if there were a hidden censor, a little man in the head, who selects certain features of the scene for transmission to the consciousness of you the observer; for that the observer himself should select from what he is not conscious of seems as great a paradox. Care must be taken not to understand the hypothesis in such a way as to suggest a mythical censor, and if some analogy is required for the processes postulated, it must be remembered that there are selection devices which do not imply selection by a person from raw material of which he is fully aware. One might imagine the brain acting as a sort of filter, like a tuned circuit in radio, that only allows certain kinds of pattern to pass and become conscious. Tuning arrangements, or similar devices such as those controlling the brightness and focus on a T.V. tube, may be operated by the person aware of the final result, and so one might liken the general deliberate operation of attention to turning the tuning dial until some programme strikes one and then tuning it in properly; but, more interestingly, tuning controls may be pre-set, so that the unwanted signals never come through. We thus have an analogy with 'priming' or 'set', the selection operating at the pre-conscious or pre-auditory level without the listener doing any conscious selecting at the time. Again the controls might be automatic like those tuning devices or volume controls that preserve an optimum signal despite input variations; this would suggest a parallel with object constancy.

These analogies suggest a further point that, as the different signals rejected by the radio are not sounds occurring in the set and are never converted from high to audio frequencies, there is no need to suppose that the raw material for any postulated selection or modification consists of actual sensory experiences or of some sentience which is an experience of the same kind but not conscious. Such a supposition would be absurd, as it would suggest an inner aspect of mental activity which was not conscious, though a dualist theory might be liable to a similar absurdity in admitting any unconscious mental activities. Unconscious sentience has thus an 'as if' or potential character: if the pattern prior to selection were allowed to go through unfiltered or unselected, then the result in consciousness would be a kind of sentience that reproduced all the details without emphasis and discrimination; but in fact the selection operates below the level of consciousness and the undifferentiated material never gets beyond a pattern of nerve and brain activity, rather as the unwanted signal does not get beyond the earlier stages of a radio set.

The weakness in such analogies is that they are causal. In the radio the tuning and adjustment operates on the causes, even comparatively remote ones, of the final sounds; in perception there is also a causal process, but the selection operates much later, in fact apparently at the last stage, the brain activity. And whereas there is a causal relation between electrical audio frequencies in the radio and the sound output from it, we have denied a causal relation between final brain activity and consciousness. But this merely means that the analogy is less close than it seems, for selection must still occur before the person's activity becomes sufficiently complex to present a conscious aspect as well as one of brain activity. The point of the analogy will still remain, that selection or adjustment requires neither conscious choice at the time nor the occurrence of the raw material at the final stage of hearing or consciousness, though that material may be allowed to penetrate so far.

All this is admittedly speculative, and such analogies are always artificial and incomplete; but in our present ignorance of the details of cerebral activity any suggestion must be doubtful and sketchy. My aim has been to suggest that the Sentience Hypothesis is conceivable and not absurd. Its truth is another matter, but it seems to me to be the best available at present to cover all the

phenomena discussed in this chapter, and I can but ask sceptics: How else would you explain them?

2. STEREOSCOPIC VISION

The Sentience Hypothesis cannot be accepted, however, particularly concerning the painter's view, without some consideration of the problem of stereoscopic vision, though a full treatment of that difficult and controversial issue can hardly be attempted here.

Our perception of the world as three-dimensional, as possessing depth and solidity, seems due to the interplay of two main types of factor; first, binocular vision, and second, the unconscious use of certain cues. Binocular vision is then usually analysed into three sub-factors: retinal disparity, double vision, and convergence or divergence. The operation of retinal disparity is often expressed by saying that the two eyes get slightly different simultaneous views of the same object, and that the brain responds to these different views by seeing the object as solid and three-dimensional[1] —an explanation supported by the analogy of the stereoscope. This is epistemologically objectionable in that it divides a person into a brain and two eyes all seeing different things. It might with less crudity be postulated as part of the Sentience Hypothesis that at the sentience level two different scenes are sensed, corresponding to what you see with each eye separately, and that these are somehow combined to produce the view of one solid object. But even that seems dubious and unnecessary here. Only the patterns of stimulation on the two retinas are known to be separate and different; but they are not pictures that the percipient sees, merges or compares; they are merely necessary conditions of the percipient's awareness, not objects of it. There seems no physiological evidence of two distinct patterns of excitation in the brain, each corresponding to an eye; in fact the fibres are so interconnected that if the right visual area of the cortex is damaged the result is hemianopsia, blindness of half the field of vision, not of the view of one eye. Hence there seems no warrant for supposing that two images or views in sentience combine to produce depth in perceptual consciousness. It seems more likely that at the postulated sentience level or at that of activity in the sensory areas of the brain, there is only one scene with depth or its cerebral equivalent.

[1] As in Woodworth and Marquis, *Psychology*, p. 449.

To suppose this is not to deny the assistance of the 'cues' of the painter's view in stereoscopic vision, but merely to limit their function. As they assist us to see the picture with some depth even with one eye closed, they presumably act similarly in vision of the actual scene; but binocular vision makes the latter appear more decidedly three-dimensional, which suggests that when use of cues is excluded, as it would be *ex hypothesi* in the supposed sentience, the content would still be stereoscopic. Not only does this support those who claim that sense-data have depth, but it suggests that from the start, or at least from as soon as such distinctions can appear in the supposed confusion of infant consciousness, we are aware of a world of external objects in depth; dim and vague as this awareness must be, it at least enables us to discard the 'projection' or 'actual inference' theories which suppose that the external world is projected or inferred from an equally dim awareness of private sensations as such.

Binocular vision is also said to make two further contributions to the perception of depth and distance, though their extent and mode of operation is doubtful. One is by means of double vision: as the eye is focused on distant objects, near ones seem doubled and *vice versa*, which can be checked by holding a pencil close to the nose and looking at the room. It is only rarely that objects are close enough for this effect to be noticeable, but it is inferred optically that there must be unnoticed doubling of vision whenever near and distant objects appear in the same scene. The effect must be slight, however, and my thesis will hardly be affected whether this double vision is finally shown to operate like retinal disparity or to form an unconscious cue to distance. The other contribution lies in the accommodation and convergence or divergence of the eyes: as we change focus from near to distant objects, for example, the eyes diverge slightly and the lens of each eye is adjusted. The relevance of this to the Sentience Hypothesis is even less clear: some have thought that these changes act as cues to distance, either by feeding back impulses to the brain or by slight blurring of the field of vision, while on the other hand by altering the percepta, the movement will lessen the need for modifying the sentience. In any event their influence seems small.

If these secondary effects of binocular vision do act as cues, they would better be classed with the second type of factor, more generally agreed examples of which I shall now discuss. Among

the cues psychologists have listed for perception of depth and distance are:

(i) linear perspective, e.g. the apparent meeting of railway lines in the distance; (ii) aerial perspective, the way more distant objects appear fainter and less definite in outline; (iii) colour perspective, the different apparent colour of distant objects of the same actual hue as near ones; (iv) shadows and the general play of light and shade, e.g. the patch of light on a convex surface; (v) interposition of objects, e.g. if object A breaks up the outline of object B then object B is behind it; and (vi) parallax, as when distant objects seem to pass less quickly than near ones if one is in a moving train. Finally (vii) we may note a factor whose importance has only recently been given due emphasis,[1] that of texture gradients: we can distinguish visually different kinds of texture of surface, e.g. that of cloth, wood or grass, and this not only helps to differentiate one kind of object from another but is also an indication of shape, e.g. where there is curvature in graining or texture-pattern, and of distance, e.g. when blades of grass or clods of earth seem to grow smaller and less distinct in the distance.

Most of these factors are part of the painter's view: they must be introduced correctly into a picture for depth and realism, and owing to their general operation in perception the world does not appear flat and depthless even when seen with one eye. If, as most psychologists hold, they are used as cues to depth and distance by the percipient, then that is support for, in fact almost a way of putting, the Sentience Hypothesis. The cues are features of the scene of which the percipient is unconsciously aware, and so will characterize the supposed sentience, and their use is a modification of it; though, as there are many other modifying influences, the discrimination of the cues by perceptual reduction will not reveal pure sentience but merely an intermediate type of experience between it and normal perception.

There is however a good deal of controversy about these factors, first as to whether they should be regarded as clues we interpret or as cues we use. The former view suggests intelligent reasoning and inference, even if subsequently the reasoning becomes automatic, and so may be regarded as a part of the Judgment Theory, even though its advocates were often not Idealists and are referred to as Empiricists by psychologists. The word 'cue' suggests prompting

[1] See J. J. Gibson, *The Perception of the Visual World*.

rather than data for reasoning, but the metaphor should not be pressed since an actor may use a prompt much more consciously and deliberately than the percipient is supposed to do. However, it is a convenient and widely accepted term, and may be taken to indicate that the modification of basic sentience, the use of the cue, is not deliberate and intellectual but is something we can hardly help doing, something we do automatically without thought or realization of it and without reasoning.

Some psychologists, however, deny the existence even of cues, maintaining that depth and distance are seen directly, and that perceptual reduction, so far from affording us evidence of an underlying sentience, merely offers us a different state of perceptual consciousness, one which succeeds but does not underlie the original.[1] This would damage the Sentience Hypothesis if true; but it need not be accepted, for the introspective unity of perceptual consciousness on which it relies is no objection to a genetic hypothesis of the type I suggest, and many of the other discrepancies on which I rely are not discovered by perceptual reduction. Furthermore, if the painter's view is quite distinct and not genetically related to the normal one, it is difficult to see why the details revealed on it are necessary for realism in a picture and can give a monocular impression of depth.

A recent version of this denial of cues has been argued with great detail and plausibility by J. J. Gibson, but I can do little more than mention it here. He argues that the traditional cues for distance and depth can all be expressed as 'retinal gradients and steps of ordinal stimulation' of the eye, and that there is an 'exact correspondence' between such changes in stimulation and 'impressions of distance and depth in the perceptual experience we have called the visual world'.[2] So far, if we read 'perceptual consciousness' for 'visual world', his thesis does not clash with mine, though its assessment is a matter of experimental psychology. Where it is difficult to follow him in his claim that as a result

[1] See R. Firth, *Mind*, 1949, p. 461.

[2] J. J. Gibson, *The Perception of the Visual World*, especially Chapters 6 and 7. The quotations are from pp. 138 and 144. By 'visual world' he claims to mean the world as we normally see it, 'the familiar, ordinary scene of daily life, in which solid objects look solid, square objects look square . . .' (p. 26). But he speaks of it as an experience and it seems to correspond to what I call the inner aspect of normal perceptual consciousness. He contrasts it with the 'visual field', which corresponds to my 'painter's view', the experience obtainable by perceptual reduction.

depth and distance are directly perceived, their perceptual impression is 'primary, immediate, and independent' of any sensations. His reason for this is that variations in the stimulation of the retina are not sensations or experiences and so not elements in or underlying perception. To agree about the stimulation of the retina does not, however, mean that the Sentience Hypothesis has to be abandoned, for one can still postulate unconscious sentience or sensations corresponding to the varying stimulation and claim their use as cues for depth perception. Gibson has to agree that these alleged cues can be discovered by attention and perceptual reduction: in his language the painter's view is the 'visual field', and the alleged cues 'can be described as they appear when one observes his own visual field'; they are 'impressions . . . which depth and distance look like when they are not seen as depth and distance'. But while conceding that they may therefore be called sensations, he allows this only if they are understood as mere 'visual symptoms of stimulation', as 'secondary impressions' 'obtainable only by analysing the perception' and not 'causes or elements' of it.

This position is open to our earlier objection that, as the details of the visual field or painter's view are necessary for realism, they are more than mere symptoms and play a genetic role in perception. Also the supposed direct relation between full perception (the visual world) and retinal stimulation allows no place for noticing or failing to notice in general or for factors like the influence of learning and experience in perception discussed below. A further difficulty is that if the 'secondary' impressions of the visual field are symptoms of stimulation they must be caused by it, and as they, unlike the 'primary' experiences of the visual world, agree with the stimulation patterns in not being stereoscopic (on a single eye view at least), it is surely more plausible to suppose that they, rather than the alleged primary experiences, are the effects most closely corresponding to the stimulation. Hence there is still room for the Sentience Hypothesis that impressions of the visual field are really primary and used as cues. What is more, if the experiences of the visual world are immediate and independent effects of retinal stimulation and not due to the use of cues, it is difficult to see why perceptual reduction alters them, for the close attention given should confirm their primary and immediate nature; indeed it is difficult to see why there should be a visual field at all.

3. LEARNING AND EXPERIENCE IN PERCEPTION

Some of the evidence discussed in Section 1, e.g. the differences in what will be noticed by an architect or a naturalist, by a detective or a tribesman, indicates the important part played by learning and past experience in perception. This merits further discussion, particularly as it affords a good opportunity for emphasizing the difference between the Sentience Hypothesis and the Idealist doctrine of implicit inference.

An Idealist interpretation of these facts is developed by Blanshard in Chapters IV–VI of *The Nature of Thought*. Variations in perception according to learning and experience, and success or failure in noticing, are attributed to 'the mass of meaning with which we greet what is given us', in perception (p. 192). But despite his long discussion I am not clear as to what this meaning-mass is. The conclusion of Chapter IV seems to be that it is a system of dispositions, though that is introduced apologetically with the admission that we do not know what they are, only what they do. (For all this he seems unduly confident that they are mental not cerebral.) In much of Chapter V, however, the meaning-mass is interpreted as a system of ideas; it is the dominant group of ideas of the moment that determines what we notice; the presence of the appropriate ideas increases the power of the senses to discriminate, and despite other advantages the 'control of perception by idea' leads to error and illusion. Besides the apparent difference between the two accounts his conception of idea is difficult for anyone not steeped in Idealism to grasp—an idea is conceived as 'a partially realized purpose or as the object itself *in posse*' (p. 519).

The two accounts might be combined in various ways, e.g. by supposing that the meaning-mass is a system of ideas which create a disposition to perceive in various ways, or that an idea is itself a disposition to do this, but for our present purposes we may take the two accounts separately. On dispositions we have already suggested (p. 109) that they must be regarded as due to some continuing standing conditions, rather as elasticity is due to molecular structure. If this is not accepted they are useless as explanations and only state the problem; if we are wondering how as the result of past experience we can notice X rather than Y or recognize Z, to be told that we have acquired a disposition to do so

merely tells us that we now do it regularly. But if dispositions do presuppose a continuing condition, it is most plausible to suppose some cerebral trace or continuant: past experience or acquired interests must alter the brain structure or interconnections in some way, so that certain sensory excitations have a better chance than others of producing marked response and reaching consciousness, or so that the responding activity (or sentience) is modified in a different way and produces a different final pattern of brain activity and perceptual consciousness from what would have occurred if the external object had been a new unrecognized one. In other words the selective and modificatory process of the Sentience Theory requires to be invoked. Admittedly we do not know enough about the brain to know how this works; but it will not be of the crude mechanical nature that is all that Blanshard allows brain activity—a limitation which is responsible for his rejection of cerebral accounts of dispositions. Similarly, early searches for the engram were based on too restricted a conception, though there are recent claims to have found a subtler kind of memory trace.[1]

More important, however, is the question of how far these features of perception show that it is controlled by meanings regarded as ideas. To answer this we must consider more closely how learning and experience affect perception. It would seem that much of their influence is on the judgments that supervene on perceiving: in noting the detail on a microscope slide or assessing its significance, in comparing two fingerprints point by point, the expert is making judgments as the result of what he sees and of his past experience. Such inference *from* what one sees is not at issue here; but learning and experience do also have a strong influence on what is perceived. A scene looks different to a practised observer, and seems to possess a pattern and order which are unappreciated by the layman. This is important, not only as the pre-condition of the expert's supervening judgments, but also in painting or photography for the composition and appreciation of the work; and it is not confined to sight—in music, for example, patterns and rhythms are clear to the connoisseur in what to the layman is a confused welter of sound.

In some cases the difference resulting from recognition or a link with past experience is particularly easy to grasp: in puzzle

[1] J. C. Eccles, *op. cit.*, pp. 266–7, cf. pp. 226–7.

photographs of things from unusual angles we at first seem to see a group of shapes and then suddenly recognize the object; after this it stands out in a special way. A similar change may occur when we look for and suddenly notice an animal blending with its natural background. More complicated experiments and abstruse instances point in the same direction.[1] Distorted rooms have been devised with misleading cues for perspective, so that two people in the room or at the windows look of quite different size, although the observer knows that they are not; but with practice it becomes possible to cut off mentally these misleading features and see the persons as they are and the room as distorted. Similarly the observer cannot at first hit a stationary target mouse in the room, but soon learns to do so. In fact it is claimed on this evidence, on that of blind men who recover or gain their sight, and on the effect of wearing inversion lenses, that the harmonizing of sight and touch and of sight and sound has to be learned, though it was normally acquired effortlessly in childhood by the manipulation of objects and so on. The point of all this is that the apparent size and position of things depends to a significant extent on experience which evidently affects the percepta not the percipienda. Similarly it appears from experiments that other subjective factors affect perception: thus a hungry man not only notices food or things connected with it, but his hunger affects his estimates of size, so that items of food look larger than other things of equal size.

There is thus abundant evidence that experience, learning, interests or even emotions affect how a scene looks but not the scene itself, i.e. are responsible for a difference between percepta and percipienda. But the claim that this is due to the 'control of perception by ideas' or to 'the dominance of the meaning-mass' seems to go too far. First, the word 'control' is too strong for the great majority of cases and suggests a mastery over the 'given' that is rarely if ever obtained. If ideas did control perception we should surely have more difficulty than we do in agreeing with other observers or with cameras and recorders about the nature and characteristics of what we perceive. The obvious difference between the variety and freedom of imagery and the obligatory or given element in what we perceive must not be forgotten. 'Influence'

[1] For a survey of the evidence and references to original work see E. R. Hilgard, *Introduction to Psychology*, or his article in *Perception: An Approach to Personality*, ed. by R. R. Blake and G. V. Ramsey.

would be a more appropriate term, for the modifications of the appearance of the scene effected by learning and experience are limited in scope, and are discriminatory or selective rather than creative—they rarely help us to 'see' what is not there.

Secondly, the claim that perception is controlled by ideas is difficult to make without suggesting that perception is the appreciation of ideas and meanings or at least is dependent on their appreciation, that it is controlled rather as the conclusion of an inference is controlled by appreciation of the force of the premisses. And this would be to make perceiving too intellectual, to reduce (or elevate) it to inference or judgment, a view I argued against in the last chapter. Thus in the case of the distorted room our past experience, in so far as it is crystallized in the knowledge or intellectual judgment that the two persons are the same size, does not prevent their looking different; and we may also recall other cases where illusions overcome knowledge. The influence of experience must be in more hidden ways, by the unconscious use of cues rather than by the control of ideas or appreciation of meanings.

However, although 'cues' is appropriate to perspectival effects as in distorted rooms, one needs other terms as well; thus there are the unconscious sifting and selecting supposed in attending and noticing, or the way patterns or objects seem to stand out or lead to others in discrimination. It is extremely difficult to give a convincing account or hypothesis of the operation and detailed nature of these supposed modifications of sentience; for they are unconscious and involuntary, and if we try to reproduce them consciously they become confused with inferences from what we know of the scene or of similar ones. Negatively one can say they do not amount to anything as intellectual as inference or appreciation of ideas—even at times they work against them. They can be presumed also in children and animals, who can notice and locate, discriminate and recognize, and can develop these powers by practice and experience. It might be suggested that there are unconscious analogues of conscious selections, discriminations and interpretations, or automatic revivals of past activities of this kind. But this is hardly satisfactory. If it is not to be unhelpfully vague it will risk over-intellectualizing and merging into the Judgment Theory, while, owing to the frequent novelty of material, the effects of learning and experience are too flexible

and diverse to be simple unconscious repetitions of earlier and forgotten overt interpretations.

If one again compares percepta with percipienda, especially if one contrasts what we notice with the whole scene, contrasts the recognized object or discriminated features with the background, or contrasts the object in depth with the cues, then the characteristic difference seems to be that the percepta stand out in some way—almost as if there were a spotlight on them or they were in a brighter area of a T.V. tube. But it would be a spotlight that changes its object to some extent also, for the percepta that stand out are also altered somewhat in character, in shape or size for example. It would seem then that the best concepts with which to try and specify the vague notion of modification of sentience would be: emphasis or standing out of pattern or of part of the whole, and change of pattern or of emphasized features. (Though we are only aware of the results of such emphasis or alteration, not of their occurring.) It is not difficult to conceive of such modification as unconscious or automatic and involuntary at the time, though facilitated by priming or past experience; and one may think of them as involving patterns of neuronal activity which are more readily developed than entirely new ones because they involve interconnections which have occurred in the past. But recognition is not just a matter of the object standing out and being easily discriminable, and we must include the further modification of sentience outlined at the end of the last chapter, namely the merging of it with a conceptual element, with the thought of the object or type of object concerned. Again this modification is more plausible and understandable when the two elements, thought and sentience, are each regarded as correlated with, and in a sense as being patterns of, brain activity. But any detailed or precise suggestion of how these patterns could merge and modify each other or evoke further ones seems beyond our present knowledge.

One can, however, understand without any appeals to cerebral activity that the proportion of sentience to modification must vary greatly from one perceptual situation to another, largely according to the strength and definiteness of the percipiendum. A similar variation is recognized by psychologists who distinguish between 'literal' and 'enriched' perception (Hilgard) or 'literal' and 'schematic' perception (Gibson). But useful as these terms are, they have the misleading suggestion of a dichotomy; in fact there

seems to be no hard and fast line between them, and there is rather a gradation, a series of levels of perceptual consciousness which merge into each other. At the one extreme there is phenomenological observation, the attempt by perceptual reduction to approach pure sentience, though it never seems quite to reach it and meets with varying success in different circumstances; then with no definite boundary there is literal perception, or careful attentive observation of objects, with identification or recognition but a strong foundation in sentience: then various degrees of enriched perception in which the modificatory elements play a larger and larger part, for example we see a speck as an aeroplane, a tool as a tool, ice as cold; and finally there seem to be situations in which the modificatory elements do have a dominant transforming influence.

This last stage of 'transformed perception', as we might call it, will vary according to the type and scope of the modification of the sentience. It may be largely conceptual: a weak or vague sentience, due to a faint or indefinite percipiendum, is so affected by priming and past experience, or by the context of one's thought at the time, as to lead to a perceptual consciousness which is largely thought of the object. Thus one may jump to conclusions or make rash identifications, and may say 'Here's Jim' when a vague sound that might be a footstep is all that is to be heard. And as perception is anyhow pre-judicial and often provides a subject for judgment, it may set off such a train of judgments, or may fit in so well with previous thoughts, that in retrospect all one is aware of is the set of judgments; the sensory element or sentience that gives perceptual consciousness its distinctive introspective quality being so weak that that quality is scarcely noticeable. An interesting special case of this is that of reading or listening to absorbing talk; our attention is monopolized by the meaning of the words and we are not conscious of seeing or hearing anything, though we must have done and if the material is boring we shall notice shapes or sounds. On the other hand the transformation may be largely imaginative, particularly perhaps for those whose thought itself tends to pictorial imagery rather than words, and so the sentience will be merged in or quite overlaid by a preponderance of visual or auditory imagery. Thus over-expectant sentries 'see' the enemy moving at night when there is only a vague shadow at most to be seen; a mother 'hears' her baby cry when there is only a faint

sighing of the wind; and the conflicting accounts of honest eye-witnesses are notorious.

This outweighing of sentience by modificatory activities seems often to blame for misperception, and we shall have to take account of it also in our final account of hallucination (pp. 308 ff). It is greatly encouraged by a poor and ambiguous percipiendum. One would not imagine an illuminated lamp-post to be a person or a howl from the radio to be the baby. It seems we are dissatisfied with faint or ambiguous perception and have a strong tendency to make definite identifications or achieve consciousness of definite objects; and the nature of the identification or the apparent objects depends on the context of thought at the time. This has been confirmed by various psychological experiments, e.g. subjects are allowed a quick glimpse of nonsense words which they misread according to their expectations.

It must be remembered, however, that these are special cases. The percipiendum is usually strong enough to prevent this kind of error, and though some degree of enriched perception is fairly common, it is rarely transformed and can almost always be interrupted and tested. If we attend closely to what it is that we see, we can strip off much of the conceptual or imaginative supplementation and attain literal perception; we may go further in the approach to sentience and achieve phenomenological observation, but this is not necessary. We can check the spelling of a word without minutely examining the outline of the letters for flaws, just as we can notice the previously unobserved drainpipe on a familiar house without being aware of the glint of sun on it. This ability to change to literal perception is vital to any empiricist philosophy, for it affords the kind of observation that we use for testing perceptual statements. It seems obvious that such closer observation is more accurate than highly enriched perception with its freely ranging conceptual and imaginative elements; and this can easily be checked by comparing its results with photographs or recordings or the evidence of others and by using causal arguments based on subsequent observations.

Neglect of the accuracy and objectivity of literal perception has led many philosophers to talk as if perception were an arbitrary synthesis and the perceptual world a mere creation of ours. Thus, apart from the classical cases, Blanshard asserts in Chapter III that things, the objects of our perception, are synthesized by us

to suit our convenience, and even that 'Those solid everyday things which seem constructed in a fashion so firm and so inevitable are really thrown together in a most hit-or-miss way', (p. 121), as though we or Nature were jerry-builders. Later he likens the process of perceiving to a cook's 'roll[ing] out a sheet of dough and then stamp[ing] out the shapes of cookies ready for the oven' (p. 131). To which one can but retort that if so it is surprising that we do not mould and cook undesirable perceptions to suit ourselves.

I have already dealt with the preliminary steps that often lead into this dream kitchen—the arguments from illusion and hallucination for example—and may add that before one can maintain that we have synthesized things there must be a set of elements out of which we can construct them. Sense-data or representative ideas or sensations have been alleged as such elements, but if my arguments against them are valid this type of theory is frustrated at the start. And even if there are atomic sense-data any human synthesis of them may most plausibly be a synthesis of discovery, not creation, as Price has pointed out; we may simply find that they go together in groups or families. Whereas if dough is sought rather than bricks, it is difficult to discover any uniform material out of which objects can be shaped; both the physical world and any supposed sentience or field of sensations are highly diversified with different phenomenal characteristics to mark the different objects.

Blanshard seems chiefly impressed by the influence of our interests and past experience, but this leads him gravely to underestimate the scope and authority of literal perception. And not only are objects marked off from each other by their objective properties, but I have suggested that we probably see objects as wholes from as early as any differentiation is possible. Stereoscopic vision makes objects stand out as such, and the effects of changing position or of manipulation abundantly confirm the distinct unities it reveals. Admittedly our differentiation of objects may appear arbitrary in some respects, e.g. when we distinguish hand from wrist, handle from shaft, or word from page, and treat them as separate things; at one time we may treat a bicycle as one object or thing, and at another as a combination of wheels and other components. But these distinctions are all supported by differences *in re*, differences of shape or function or physical construction. Whether we refer to the whole machine or article as one thing or to

each component of it as a thing, is merely a matter of convenience based on the context and our purposes. But such conventionality in reference and description does not, as Blanshard seems to think, mean that our perception of them is in some way conventional and arbitrary. We are perfectly clear as to which distinctions are between separate wholes and objects, which between inseparable parts of one object, and which between separable components, and can confirm or learn these facts by literal perception if necessary.

4. FIGURE-GROUND AND CONSTANCY

Of the last group of activities or adjustments that may be adduced in favour of the Sentience Hypothesis, some are similar to those already discussed in that the discrepancy involved is between variable percepta and an apparently constant percipiendum. Thus there are the figure-ground reversals, best illustrated by the special pictures used by psychologists, e.g. the black and white drawing which seems at first sight to be two faces in silhouette looking at each other, but, if one continues to look at it, may change to a white goblet on a black background; an even more notorious example is that of the staircase, which seems to be seen now from below and now from above. In these the drawing remains constant, so the variation in percepta must be due to unconscious activity or adjustment on the part of the percipient. A similar type of example is that of the grouping of dots or similar elements. If a collection of dots is observed they seem to go together in certain patterns, though the pattern may be different on different occasions for the same person and may change if stared at. Psychologists, especially of the Gestalt school, have made many investigations into the factors which influence our grouping of such dots into one pattern rather than another: dots which lie close together, or are similar in character, or form part of some line or figure, are more easily seen as a group; so are groupings we are familiar with or are looking for. In hearing, similar considerations affect our picking out a series of notes as a tune against a background of accompaniment. Also relevant are those situations where an incomplete figure is given but we see it as a whole—many examples of this are given by Gestalt Psychologists.

One must not over-intellectualize these activities as Blanshard does: he claims (p. 111) that the Gestalt laws of perceptual

organization (the laws of *prägnanz* or good continuation which are attempts to state the principles of the activities we are considering) clearly support his inference theory: 'The taking of a given datum *as* part of a larger structured whole, the completion of a given fragment in accordance with "intelligible" form or necessity, is indeed a peculiarly fine example of what we mean by perceptual inference'. ('Intelligible' here is not opposed to 'sensible', but means 'giving understanding of the subject-matter arranged in accordance with the form'.) He also claims that such inference may be *a priori* where there is no evidence of the working of past experience, e.g. where we construe a new set of dots in one pattern rather than another.

This interpretation, however, seems so to widen the term 'inference' as to render it valueless and to introduce the danger of equivocation when inference is later defined as the apprehension of necessity. We do not judge that the dots form one pattern rather than another; nor do we pass from consciousness of them as unpatterned to the 'inferred' pattern, as we do from apprehended premiss to conclusion; we just see them straight away as forming a pattern or figure. It is difficult to see what a term like 'necessity' or '*a priori* inference' can mean in these contexts. Does it mean that you apprehend that the dots must be part only of one pattern, that there is only one figure to which the given lines must belong? Or is that we are in fact compelled to complete the group in this way, to see the dots in this pattern? In either case it is difficult to see any necessity about the grouping and figures; a given set might be grouped in various ways, and many are in fact grouped differently at different times as the reversals show clearly. And even if one group is simpler and more regular and symmetrical than another, this hardly gives it necessity. Nor is there any compulsion to see the whole figures; one can see the fragments or parts, otherwise one would never detect that an incomplete figure has been completed. Indeed, where the tendency to one way of seeing the data rather than another is sufficiently marked to be called compulsion, it seems to work against the apprehension of truth, let alone necessary truth, e.g. in the optical illusions where, owing to the effect of background lines, you see a straight line as bent or two equal lines as unequal. Even if you *know* the lines are equal or straight, you cannot *see* them as such unless you cut out the confusing background.

More positively, the main points about these activities, or perhaps better, adjustments, are these. First, they are unconscious and automatic and unintellectual. They seem in fact closely akin to the selective processes mentioned earlier by which some features of the object or scene are emphasized or stand out compared to the rest. They are, however, much less affected by learning or interests or past experience or priming. Groupings still occur even when one is not looking for any pattern or one is not familiar with the elements concerned; it may not be easy to pick out groupings one is looking for, e.g. to distinguish some constellations; and the reversals seems not to depend on such considerations. Also where these adjustments are aided by familiarity, that may be given a purely physiological explanation as we have seen. Hence it is perhaps misleading to refer to them as organizational activities; that might suggest they involve judgments or intellectual powers, even if the Gestalt Theorists did not mean to imply this.

Secondly, the scope of these adjustments seems limited: they seem chiefly confined to certain kinds of data—manifolds that allow grouping, incomplete figures, or *flat* figures drawn to provide figure-ground relationships. They have thus an air of artificiality, and in real life would probably be subordinated to the overwhelming influence of stereoscopic vision. So a great deal should not be built on them, though they are useful as supporting illustrations of a theory.

A more important phenomenon is 'object constancy' or 'phenomenal regression to the real object'. This differs from the others in that it is the percipienda that vary, while the percepta remain virtually unchanged. It takes various forms. One is size constancy: within wide limits the size of the seen object looks approximately constant in spite of variations in its distance from the eye (the percepta are to some extent a compromise between real size and percipienda); thus a man looks much the same size at ten yards' distance as at five, but the image cast on the retina or appearing on a photograph will be half as high and about a quarter as large in area at the greater distance, and so one might suppose the percipiendum, the theoretically apparent size, to be similarly reduced. A like constancy holds for shape, e.g. the round dish on the table looks round over a fair range of points of view, even when by the laws of perspective or evidence of photography

the percipiendum is an ellipse. (This makes the argument from 'illusion' or perpectival distortion difficult to state accurately, though if the object is viewed sufficiently from one side the constancies do not hold, or not completely.) Brightness and colour constancies also occur. One can by a meter measure the illumination of black, white and grey discs and compare the result with perceptions; this shows that the white one is still seen as white even when it is in such dull illumination that it is reflecting less light than the grey or black do in brighter illumination.

One *prima facie* explanation of these phenomena would support the Judgment Theory: it might be said that because we know the shape of the penny, the size of the man or the colour of the white object, we still judge them correctly even in unfavourable circumstances. And admittedly, other things being equal, a familiar object will remain constant over a wider range than will an unfamiliar one. Constancy seems, however, to work even with unfamiliar objects whose shape and colour is not known beforehand, nor can it be preserved, despite familiarity, if the other things are sufficiently unequal; e.g. the moon near the horizon looks larger than normal and the men in the distorted room look widely different in size. What seems to be the dominant factor in the operation of constancy is not familiarity but the presence of the background. This can be roughly checked by a simple experiment. If a penny on a table is looked at down a long tube or rolled paper of such diameter that only the penny is seen, then the constancy does not hold and the apparent shape varies according to the laws of perspective; the contrast is especially noticeable if the tube is suddenly removed when the penny has been looking elliptical; it is then seen in its background and looks quite round. In a laboratory reduction screens are used to cut off the background, and more elaborate experiments can confirm its vital importance. Granted, however, that constancy depends on one's being able to see the background or setting, its precise operation is still unclear.

Supporters of the Judgment Theory can maintain that the percipient subconsciously compares the object with its background and makes inferences from it: you see the white object as white, even in poor illumination, as the result of comparing it with other things which look darker and of making allowances for the changes in general illumination; and in shape and size you judge

distances and angle of view from surrounding objects and have learned how to interpret their effect.

There are various other explanations however. Accounts in the textbooks may have a tendency to vagueness—they use language like 'read off the approximate colour' or 'allow for illumination'—but they are accompanied by denials that the observer goes through any process of reasoning and calculation.[1] They seem to suggest that the operation of constancy is like the use of cues in stereoscopic vision. A more definite contrast to the Judgment Theory is offered by views in the Gestalt tradition: it may be claimed that constancy is due to an automatic adjustment and compensation of a physiological nature, either in the retina or in the brain. This is readily conceivable for brightness and colour, the general illumination or background determining the setting or level of sensitivity at which the sense organs work or causing a general frequency shift. Alternatively it may be claimed that this is an unnecessary and unverifiable hypothesis, and that there is in fact a direct perception of constancy and so no problem. Even if the absolute brightness of the white paper varies, the 'stimulus gradient', i.e. its relative brightness (in relation to the general illumination and to other objects, grey or black) remains constant. Hence constancy depends not on comparing the object with its background or general illumination—for we are never aware of doing that, and it would result in judgment not seeing—but in a direct perception of the invariant contrast or gradient between them, in just seeing their relative brightness.

The physiological adjustment hypothesis is more difficult to maintain for shape and size, and the Gestalt Theorists have produced elaborate theories of spatial organization to deal with it (they are also meant to deal with grouping and figure-ground relations):[2] the shapes and forms seen are said to be brain forms, the result of the combination of external forces (the stimulus) with internal ones acting according to various principles of organization; both forces are conceived of as interacting automatically like electrical and magnetic forces. There are various difficulties in this apart from its unverifiability: neurologists claim that brain patterns are unlike seen ones; and if so much is due to internal forces one would expect more subjective variation and less of the

[1] See Woodworth and Marquis, *Psychology*, pp. 453–5.

[2] e.g. Koffka, *Principles of Gestalt Psychology*, Ch. IV.

faithful observation that occurs in literal perception. These are not insuperable, but there have been attempts in the Gestalt tradition to offer a simpler explanation as for brightness constancy.[1] Thus it is argued that for size constancy size (percipiendum) and distance make an invariant like colour or brightness contrast, and it is this invariant 'size at a given distance' that we see. Gibson supports this by arguing that distance is directly observable as the result of texture and other gradients in a continuous background. Shape constancy is more difficult, but here the relation of shape to orientation or slant is constant, and slant is perceivable by angles of edges of surfaces or texture elements. Thus we see not shape and size, but shape-plus-slant and size-at-a-distance, and as each of these is the invariant product of two variables the constancy of the perceptum is adequately explained. We do not need to suppose physiological forces or any modification of a basic sentience.

The issues involved here are complex and controversial and it still seems to be a field for experimental psychology without any assured results that a synoptic philosophy can use. But the alternative theories do not involve any general rejection of the Sentience Hypothesis, except for the Inference or Judgment explanation; and that may be rejected on the general grounds already given. As applied to constancy they would be: that there is no separate apprehension at the time of the immediate background or of the data without constancy, and you cannot compare or judge about what you are not aware of; that there is no consciousness of judging or comparing; and that the constancy survives contrary knowledge or judgment, e.g. even if the psychologist knows that the illumination of the white paper in the shade is less than that of the darker one in the bright light, he does not therefore see it as dark and not white, unless he uses a reduction screen. To this it may be added that such alleged inferences and comparisons need no intellectual powers; children and even such unintelligent creatures as chickens and fish seem from experiments to see things with constancy.[2] As against this there is some evidence that adjustment is learned, in difficult cases at least, such as colour wheels. Some persons are not very good at seeing things with constancy and their performance can be improved with training,

[1] J. J. Gibson, *op. cit.*, Ch. IX; but much of this is already given by Koffka (pp. 227 ff.) despite his organizational forces.

[2] R. S. Woodworth, *Experimental Psychology*, p. 606.

while conversely some can with practice and effort cut out the background and see the object more as it would appear through a reduction screen. But it is doubtful whether this is evidence of inference or judgment. One can learn to do various things which are normally unconscious but which are physical rather than mental and are not matters of inference or intellectual judgment, e.g. learning to walk or ride a bicycle; also seeing things without constancy is not just a matter of knowing the percipiendum and is unlike analysing or seeing the premisses of an inference.

The earlier Gestalt view of organizational forces could be accommodated on the Sentience Hypothesis, by supposing that the perceptum is the result of such forces acting on or interacting with a sentience corresponding to the external stimulus forces. The Gestalt Psychologists reject sensations in any form, but if the postulated unconscious sentience is identified with brain activity, it is much closer to their forces than to ordinary sensations. The main difference, an advantage, is that one does not have to suppose that the brain activity, which is the outer aspect of the sentience of a round object, is itself round.

If one were to accept the direct 'invariant' theory in its entirety, constancy phenomena would have to be excluded from the list of supposed evidence for the Sentience Hypothesis. But it is not easy to accept it, valuable as are some of its insights. It seems important to account for the intimate relation of size and distance, shape and slant, on which the theory lays so much stress, and one may even admit that it is fairer to say that the percepta are size-at-a-distance or shape-plus-slant. But the difficulty is in supposing that they are seen directly; most of the novel and interesting evidence adduced seems to be of the direct perception not of these complexes but of one from each pair of the variable elements, namely distance or slant, and there may be misgivings even then about distance. And as one alleged element, namely percipiendum, shape or size, is not normally seen, it would be odd if the complex and the other element were directly seen. This disparity does not seem to be noticed, since the theory tends to use the simple terms 'shape' and 'size' without a clear distinction between percipiendum, e.g. the ellipitical shape of the penny as seen through a reduction screen, and perceptum, e.g. its round shape seen when the background is visible.

Finally the same difficulties arise as in Gibson's account of

stereoscopic vision. It has to be admitted that cues for distance and slant can be distinguished by perceptual reduction, and that with a greater effort or more elaborate apparatus the percipiendum shapes can be distinguished. And particularly as they are supposed to correspond most closely to the stimulation, it seems most plausible to suppose that these cues, or the brain activity correcponding to them, play the part in perception allotted to sentience, and that they, not the perception of size-at-a-distance or slant-plus-shape, are the primary and immediate results of stimulation. Hence it seems that one's explanation of constancy should be in terms of cues similar to those which play a part in stereoscopic vision. Granting with Gibson and Koffka that the final result or perceptum is a complex like shape-plus-slant, nevertheless it is easier to suppose that this complex is attained as the result of the unconscious use or modification of a basic sentience; this postulated sentience would contain the percipiendum shapes and sizes and the distance and slant cues. And though expressions like 'use of cues' are far from clear, they should be interpreted in the way suggested in the discussion of stereoscopic vision.

5. FURTHER NOTES AND SUMMARY

In expounding the Sentience Hypothesis I have been chiefly concerned with sight, for that is the most important sense and the one in which the discrepancies and modifying activities are most prominent. A few notes may however be added about the other senses.

Hearing shows many of these activities, though to a lesser degree; the operation of attention is obvious enough, and selection and grouping occur when we pick out a tune from its background, the main difference being the temporal rather than the spatial arrangement of the elements. Recognition occurs also, aided by learning and experience but with the difference that it may appear relatively indirect; the recognition or identification of the sound may be described, and might even be analysed, as recognition of its source. At any rate there is a ready distinction of sound and source in hearing, for they may differ appreciably in space and time. And this may be contrasted with sight, where it is not sense to talk of the source of the look of a penny, or of sight coming from over there, or of seeing the sight of a train in the distance.

But while these last differences must be admitted, it seems to me that there is a closer resemblance between recognition in hearing and seeing than they might lead one to suppose. To say that X recognized the source of the sound or that he realized the noise was from the train is legitimate enough, but it is third party description based on knowledge of the whole situation; and 'The noise comes from the big-end bearing' or 'I don't know the source of the sound' are at best supervenient judgments. They hardly seem acceptable as analyses of the percipient's consciousness or as pointers to such an analysis. For so far as descriptions are concerned one could equally say one is hearing the train or the bearing, and there seems little other reason for a different kind of analysis; the sentience which gives the act its special 'feel' or 'flavour' is auditory not visual, but one may say, as in sight, that this is fused or merged with a conceptual element or thought of the object. But although the thought is of the object that is the source of the sound, I doubt if it is thought of the object *as the source*; the sound and the thought of the object seem to arise together without thought of the relation or distinction between them.

The main difference from sight seems to lie in another direction: perceptual consciousness of a sound as such, or of a sound as being of a certain character, e.g. loud and shrill, is relatively common; in such cases the sound is heard without any ready recognition of its origin or accompanying thought of its object. Because of the difficulties of object-recognition by hearing, we are, as it were, fairly often in effortless phenomenological observation. The conceptual element is weak and is of the properties of the sound not of any object—unless the sounds are words, in which case there is a strong conceptual element of a different character. But there is a further distinction: in most corresponding situations in sight, e.g. where we see a speck or something green but do not realize what it is, we are still seeing it as a material object of some sort, unless we make an effort of reduction, and in a subsequent judgment can assert that it is an object or part of one. This may be partly because anything we see almost always is a material object; more often it is because the unidentified thing is seen with depth and at a distance or looks unitary in some way, looks a kind of whole or object. Nevertheless there are a few situations in sight which are very much closer to hearing and in which what we

see has no object-look though it is still perceived as public. We may see a flash and recognize it instantly as lightning, or we may see a red glow as such and then judge that it is due to sodium-vapour lamps, not the sunset.

It is important to realize the nature of the basic similarity of object-recognition in sight and in many cases of hearing, for it might be tempting to propound a kind of judgment theory for hearing and even to suppose that it is a slow motion version of what happens in sight. It might be suggested that perceptual consciousness of a train (hearing it) is sensing or 'hearing' the sound and then judging it to be from the train. But this would not only be inapplicable to the usual cases of hearing a train where there seems, as in sight, to be a fusing of sentience and a conceptual element to form a consciousness which is pre-judicial not a judgment, but it would be false for the cases where we hear the sound as such and then make supervenient judgments about its source. For the hearing in such cases is already perceptual consciousness of a public object (though not a material one in the normal sense) and is not mere sensing as an element within perceptual consciousness. Similarly flashes and glows are, with trifling exceptions, public phenomena independent of the percipient, and they are thus perceived.

About smell we need say little: as in hearing there is a marked difference between the (public) smell and its source, and so there may often be perceptual consciousness of it without identification. Taste may seem different because it is at first sight a private sense with private objects; although we may all taste the same pudding there seems to be something private and personal about tastes. This does not however mean that the sweet taste of the pudding is a private sense-datum belonging to the pudding; the point seems rather to be that to taste anything you have to have it or a portion of it in your mouth, where its publicity is for practical purposes cancelled and becomes theoretical only. But even in tasting an unrecognized 'something sweet' you are perceptually conscious of it as an object (unless the taste is a private sensum, a 'taste in the mouth' parallel to ringing in the ears).

For sighted people touch is of limited importance so far as perceptual consciousness is concerned. It is important as a test of reality—tangibility—but it would then normally be applied as the result of what we see, and as part of a series of operations

making up critical perception. For manipulative skill and the practical affairs of life we have to learn to co-ordinate touch and sight, but this is not normally part of perceptual consciousness; you see the paper or the hammer before you try to pick it up. Usually touch has to be enriched to be informative, and the tactual sentience is merged with a good deal of conceptual and imaginative supplementation, a sort of schema of the seen world; but in phenomenological observation such sentience can be isolated and quite closely approached.

To sum up. I have advanced a Sentience Hypothesis as an attempt to explain certain features of perceptual consciousness, namely its liability to error and the various discrepancies between percepta and percipienda. I suggested that they arise as the result of various modifications of a basic sentience which corresponds to the percipiendum, i.e. is such that if it were a conscious activity the person would have a phenomenological kind of awareness of the theoretically apparent properties of the object. But in fact it is an unconscious activity never attainable in its purity, and so are the supposed modifications. It may also be conceived under the aspect of brain activity; sentience as a pattern of brain activity is overlaid by or merged with or modified by other brain activity, so as to produce a complex of activity which is the outer aspect of, and so in a sense is, perceptual consciousness.

Four main types of modification are suggested, though no hard and fast classification seems possible:

(i) A fusing or merging of sentience with conceptual or imaginative elements. The presence of a conceptual element enables perceptual consciousness to be 'seeing as' or recognition, both extra elements make mistakes possible, and the sentience is responsible particularly for its pictorial quality.

(ii) Selecting or sifting, which results in certain features of the percipienda standing out and being emphasized at the expense of others. This occurs in involuntary attention (noticing and not noticing) and in recognition and discrimination.

(iii) The use or cues, i.e. of features in the percipiendum and sentience which automatically and unconsciously affect awareness of the whole so that the resultant perceptum possesses different qualities. These qualities may be new ones such as depth in the perception of a flat scene, or may be old ones preserved through sentience variations as in object constancy. Probably in ordinary

perception of the physical world the depth cues emphasize a sentience that is already stereoscopic.

(iv) The effects of learning and past experience. These in the main qualify the other three, providing richer conceptual or imaginative elements, affecting what is selected or emphasized and assisting the working of cues. One must suppose that this is done by some physiological process; the occurrence of certain brain activity or the making of certain interconnections makes it easier for similar activity to be evoked by and react on a similar sentience on another occasion.

From a different point of view the operation of these modificatory activities may be considered as a gradation. At one extreme is transformed perception which is scarcely perceptual consciousness at all, as the sentience element is quite overwhelmed by the conceptual or imaginative ones or by supervening judgments. At the other is sentience, the postulated purely sensory element. In between are varying grades of perceptual consciousness: an enriched form with strong conceptual elements; literal perception in which we see objects as such but the sentience element is strong enough for that full and reliable observation which is the basis of science and our knowledge of the world; and a reduced perception in which some at least of the modifying factors are removed or attenuated, so that phenomenological observation is attained; and there are many intermediate stages between these grades.

CHAPTER TEN

FINAL ACCOUNT OF PERCEPTION

1. RE-EXAMINATION OF THE PHYSIOLOGICAL EVIDENCE

I must now attempt a final theory of perception which will account satisfactorily for the causal processes involved, will be in accordance with the theory of the relation of mind and body developed in Chapter VII, and will allow for the Sentience Hypothesis and the diverse phenomena of perceptual consciousness. The resultant theory must then be used to give a final solution, so far as that is possible, of the problems sketched in the opening chapter. A provisional attempt has been made to deal with most of them on common-sense lines, but that was largely attempted without consideration of the physiological and psychological evidence; this was allowable because it had the limited aim of showing that the usual philosophical attacks, which likewise ignore this evidence, are unable to dispose of common sense by their arguments from illusion and hallucination or their attempts at the analysis of perception or its language. Much of this provisional defence will be maintained in the final theory, but some amendment will be necessary and the common-sense assumptions outlined on pp. 16–17 cannot be accepted in their entirety. The claim to absolute certainty has to be modified on the lines suggested in Chapter V, whereas the notion of immediacy or direct confrontation in perception has to be abandoned for several reasons: not only does it fail to make sense of the relativity of perception, but the discussions of Chapter VIII and IX must put it out of court; even if the Sentience Hypothesis is not accepted, the various phenomena of attention, recognition, constancy and stereoscopic vision there discussed show that perceiving is a highly complex process far removed from simple immediate awareness. The final theory will also have to deal with problems which have arisen in the course of the discussion: it must explain the variation in the quality and accuracy of perception on which the account of relativity depended, and more must be said on hallucination and on the vexed question of sensible properties.

The best approach to these tasks will be by re-examining the

basis of the Representative Theory, for despite its faults it has remarkable persistence and pays due regard to the importance of the physiology of perception. My aim in this re-examination will be to mark clearly the line between the Representative Theory and the bedrock of fact on which it rests, thereby hoping to avoid its insidious errors and to uncover a firm foundation on which a more adequate theoretical superstructure may be built.

Let us then turn back to the four stages of the Representative Theory outlined in Chapter VI, § 1. The first was an account of the physical and physiological transmission involved in perception and seems predominantly factual; for although there is speculation about the correspondence of the cortical pattern to the external object or about the details of retinal stimulation, the general schema of a causal chain is agreed (e.g. light rays from object—retinal stimulation—impulses travelling along optical nerve—cortical activity), and it is only the general schema that we need. The second stage was an account of the subsequent causation of the perceptual experience, and a fair amount of this is agreed fact also, at least that brain activity is certainly a necessary condition of perceiving and probably (in view of the evidence of electrical stimulation, dreams and hallucinations) a sufficient one. The Representative Theory, however, goes beyond this minimum account of conditions. In the old style it said that the brain activity caused the mind to perceive ideas which were representations of the object causing the activity; it is now said, with only verbal change, that the cortical activity causes private sensations or sense-data which are symbols of their external causes. The third stage describes the passage from the awareness of sensations to that of percepts, where that passage is held to take place, and the fourth states the relation of representation or symbolization between these private objects of awareness and the external objects of the public physical world. These two stages are frankly speculative, and the danger of the supposition of private objects of awareness has been one of the recurrent themes of this book. Hence by stage three the damage has been done, and we must concentrate on stage two where the change-over from fact to theory takes place.

This change-over involves three main additions to the minimum and almost purely factual account of the stage:

(i) It asserts that brain activity *causes* ideas or sensations.

Admittedly a necessary and sufficient condition is normally regarded as a sign of a causal relationship, at least if the onset of the condition precedes the conditioned in time; but this is not the only possible interpretation. To say A is a necessary and sufficient condition of B may only mean that B is never found without A and A never without B. The two things or events thus linked may be simultaneous or in some way identical or two aspects of the same thing. If it is felt that the language of necessary and sufficient conditions precludes this, then we have to dismiss that statement of the minimum account as theoretical; for it is possible that the sensations are simultaneous with and not caused by brain activity. And in Chapter VII I argued on general grounds that mental experiences are identical with and not effects of the corresponding brain activity. This would still mean that perceptual experiences were the effect of outside causes (for the brain activity is), but it will transform this stage of the explanation of perception: it will relieve us of the notorious and unsolved problem of how brain activity can cause something so radically different as an experience. The corresponding difficulty on the Identity Hypothesis of how such apparently diverse events can be identical has to be met by insistence on the difference in modes of access, namely (i) being the person perceiving, so that one has or introspects the experience, and (ii) observing the perceiving from without by means of sense organs and instruments.

(ii) It is said, especially in the older versions, that the *mind* perceives the private world of ideas or sensations; but even where the moderns speak of 'the observer' seeing the private world they probably mean 'mind'—at least they speak of the brain activity 'evoking a percept in the mind'[1] or of colour being 'mind-spinning',[2] and may say that perceiving and symbolic representation are activities or functions of the mind.[3] But to suppose that the mind perceives anything is pure speculation, and its danger is that it may duplicate and misconceive perception by language which would be appropriate if the mind were a little person in the head seeing a film or T.V. show of sensations. More correctly it is we, the persons, who see things, not our minds or brains; and, as we saw in Chapter VII, §1, even granted the evidence of introspection

[1] Eccles, *op. cit.*, p. 281.
[2] Sir A. Eddington, *The Nature of the Physical World*, p. 94.
[3] Brain, *op. cit.*, p. 79, cf. pp. 30 and 46.

there is no ground for supposing that the person or self is a mind rather than the whole organism.

(iii) It is claimed that what the observer or mind is made to see by brain activity is a private world of mental ideas, sensations or percepts. Not all accounts stress both 'private' and 'mental', but both are I think intended; and the assertion of only one would concede the essential point, that the theory asserts that these ideas or percepts are distinct from public external physical objects, from which they are usually held to differ also in their qualities. As there are two different sets of objects, there must be two different acts or kinds of awareness, and so perceiving is duplicated by the attempt to explain it.

As these theoretical additions seem quite erroneous, is it a satisfactory alternative to say simply that it is the person, the whole man, who perceives, and that what he perceives are external objects, never private data due to them? Not without further amendment to the first point, concerning brain activity. For even if we say the perceptual experience is identical with brain activity, the admission that that brain activity is caused by the external object seems to make perceiving the last stage in a long causal process starting at the object, and how then can it be awareness of that remote object? The intervening links in the causal chain would seem to put an insuperable barrier between perceiving, as identical with brain activity, and the external world.

But note how I have slipped into the language and thought of the Representative Theory in speaking as if perceiving were the sort of activity that could be identical with, or for that matter caused by, the brain activity due to the external object. This is perhaps the most dangerous theoretical slip of all, because it is so easy to make without realizing it. Even to say that brain activity causes auditory or visual sensations is not to say that it causes perceiving in the sense that experiencing those sensations is perceiving; even to say that the brain activity causes one to perceive is not *ipso facto* to identify perceiving with the experience dependent on and immediately following the brain activity. To suppose that would be to confuse the transeunt causal relations between elements in a process with the causation of the process as a whole. To take an analogy: to pass along the street where one's house is situated may be a necessary condition of journeying

home, an essential stage in that process, because if one does not one cannot reach one's house door. It is thus also a necessary condition of arriving at one's home, but that does not mean that journeying home and arriving at one's home are the same thing. And no more does the fact that certain brain activity is a necessary condition both of certain sensory experiences and of perceiving an object mean that the experiences and the perceiving are the same thing. (In some versions the Representative Theory does not quite claim this: stage three is a claim that the sensory experiences are transformed into the awareness of percepts which is truly perceiving. But this does not affect the issue; it merely increases the stages after brain activity—puts a garden as it were between street and front door.) The danger I am stressing is that of identifying sensory or perceptual experience with perceiving; whether such experience is regarded as caused by or correlated with brain activity, this identification confuses the last stage of a process with the process as a whole and leads one into supposing that the object of perceiving is the content of the experience, some sensation or percept, and not the external object—or else it makes one offer two objects and two modes of awareness, a duplication of perception.

The only solution seems to be to reaffirm the publicity assumption that perceiving is a relation between person and object, interpreting it in the light of my theory of the relation of mind and body. Perceiving must be regarded as the whole causal process, not as the final link in it; or, more accurately, that process must be regarded as an aspect of perceiving. But when we try to work this out we find a further error in the Representative Theory: the sensory experience which that theory treats as the final link in the causal chain is of a very different kind from all the other links. They are discovered by public scientific observation, in the main observation by other people, not by the percipient; whereas the experience is available only to the percipient. Thus the theory has made the mistake we found in dualism generally. It has neglected a radical difference in modes of access: by adding the experience on to the largely physiological causal chain it has treated them as if they were both observed from the same point of view. But external observation can proceed no further than brain activity, and that must therefore be regarded as the end of the causal chain and as the limit of the external aspect of perceiving; the sensory

experience, being available to the percipient only, must be severed completely from the causal chain and be regarded as the inner aspect of perceiving.

It is not enough, however, just to say that perceiving presents these two aspects, or that the percipient's experience and the causal process from object to percipient's brain are both the one perceptual process or activity as revealed on different modes of access. It could at best be only a loose equivalence, for much of the causal process may lie outside the percipient altogether. But in my discussion of the Identity Hypothesis (p. 193). I indicated a detailed correlation and a more precise kind of identification, one based on simultaneity in the one person, on concomitant variation, and on the necessary and sufficient conditions of the events concerned. An example of this where the causal process is involved is that of toothache: the feeling of pain, i.e. the inner aspect of being in pain, is to be correlated and identified with the cerebral activity caused by the decayed tooth, not with the tooth lesion or with the whole causal process from tooth to brain. Though this kind of particularizing correlation has the merit of indicating what seems to be an exact identity of two apparently different events, and enables us to say that an experience and a pattern of brain activity are the same event differently revealed, it has the disadvantage of treating these two aspects as two distinct 'whole' events, at least initially. One asks, for example, whether the tooth lesion is a necessary condition of the feeling of pain or whether it is strictly simultaneous with it, and answers 'No' on the evidence of the chain of nerve impulses involved. To treat the terms involved as whole events in this way is inevitable, just as one treats the morning star and the evening star as separate stars in asking if they are related, and it is assisted by the fact that they are *prima facie* distinct events until the different modes of access are realized. This provisional treatment of experiences and brain events as two sets of whole events in order to identify them did not cause difficulty for other mental events and so was not stressed; but it can lead to confusion in the analysis of perception. One may make a detailed correlation of the perceptual experience (i.e. the inner aspect of the person's being perceptually conscious) with certain brain activity, and so may identify them and regard them as the one event (his being perceptually conscious) differently revealed. But if one forgets that this perceptual experience is really an aspect and

continues to treat it as a whole event in the way such correlations tempt one to do, then its act/object character as the inner aspect of perceiving leads one wrongly to think of it as a whole event of an act/object character and so to seek some status for its objects. If it is identified with brain activity those objects can hardly be physical objects quite external to the person—at least it is not clear how they can be, particularly in misperception or hallucination—and yet what can they be? There is thus an *impasse* and one cannot take refuge in the mind as did the Representative Theory; having got itself in a similar position by regarding perceptual experience as a whole event caused by, not identical with, brain activity, it had to give it private objects different from external ones—but it could postulate a mind or mental realm in which to put them.

This is such an important question that we shall have to return to it later; for the moment the warning is sufficient, that we cannot rely on the particularizing approach and on strict identity of experience and brain events alone; serious difficulty arises if they are not related to perception as a whole and seen in their proper context as aspects of the one activity of a person. We need both approaches and must consider a person's perceptual experiences both as an aspect of the perception of external objects (i.e. as an aspect of the entire process relating person and external object), and as identical with brain activity which is only part of the perceptual process, its final stage in fact.

Two final notes should complete these preliminaries. The first is that in Chapter VII when I wished to stress the difference between what are loosely called mental events, e.g. feelings of pain or mental images, and the whole situations or stages in a person's life history, the true whole events of which they are aspects, I referred to these situations by means of the verbal noun, e.g. 'X's having a pain', 'X's thinking of Y'. Now the theory of perception I offer is similarly of a whole situation in a person's life history, one presenting aspects and neutral between them, and so I should strictly offer it as a theory of 'X's perceiving Y' (which will include consideration of 'X's being perceptually conscious of Y' in so far as they differ). However, not only would this be cumbersome in practice, but I am doing more than that; I am offering a theory of perceiving in general, of any X's perceiving any Y. Hence I shall speak simply of perceiving or perception, but

must emphasize that I am discussing perception as a whole situation presenting aspects.

Secondly, there is the same superficial difficulty as in perceptual consciousness, namely that a number of different class words may be used of perceiving—'act', 'event' or 'process' are common enough, and to them I have added 'relation' and 'situation', and might also add 'reaction'. But the applicability of these various terms is largely a matter of what features of perceiving one is chiefly thinking of at the time. It is an event in that it occurs at a given time; an act in that it is something a person does, if not deliberately (also it includes activities, cerebral or otherwise); it is a process in that it can be analysed into a causal chain of component events; it is a relation in that the causal chain links the percipient with other persons and things, or in that it is an act directed on or involving other persons and things; 'situation' is meant as a neutral term avoiding the nuances of 'event', 'act' or 'process' and affording a distinction from the mental and physical 'events' which are its aspects: and 'reaction' would indicate that it is an act due to external things. The multiple applicability of these terms is not uncommon: thus eating is both activity and relation between a person and his food, while writing is an activity that can be regarded as a process.

2. STATEMENT OF THE FINAL THEORY

My theory of perception might be stated provisionally:

(i) Perceiving is, as on the publicity assumption, a relation between a person (primarily) and other public objects or events, in which he is aware of them and some of their characteristics. It is the publicity of the object that counts, and so their range is wider than that of the traditional physical objects and includes flashes, shadows and sounds as well as persons, animals and material things.

(ii) Perceiving involves mental activity and so presents two aspects:

(*a*) An outer aspect, what X's perceiving an object is to an independent observer, what can be observed from without of X's perceiving. On this aspect perceiving is a causal chain or process; in sight it consists of the reflection or emission of light rays from the object to the eye, their then impinging on and stimulation of the retina, the consequent train of impulses along the optic nerve

to the brain, and finally the setting up of a pattern of activity in the sensory regions at least of the brain.

(*b*) An inner aspect, what it is like to perceive an object. Though available only to the percipient in a given situation, this is the aspect we, as percipients, are all familiar with; and though it differs in detailed content from object to object, we could describe it as '(awareness or consciousness of) an external object'. In saying this we should be describing the general nature of the content of the inner aspect, i.e. describing the percipient's experience as it is to him, what he experiences in being the percipient. We should not be adopting the correlator's viewpoint, nor mean that in fact the consciousness was a transitive relation between the percipient and something else, that it was perception of an external object. Nor should we refer to this inner aspect as perceptual consciousness, for that is a whole activity presenting two aspects. All that is meant is that if the percipient were to describe the inner aspect of a specific perceptual situation he would say, for example, 'A large red tomato on a plate' or, and this would involve some introspection as well as just having the experience, 'I see a large red tomato on a plate'; the two alternatives are for brevity indicated by the bracket, '(awareness of) a large red tomato'. The type of object or scene would vary from situation to situation, but would always be something public and external.

(iii) Though at first sight so different, these aspects are identical in the general sense that they are the one relation or situation of perceiving viewed in different ways or as revealed on two different modes of access: the one by external observation and the other by being the percipient, by undergoing the experience oneself. This equation one will make from a third or correlator's point of view; and from that one may also adopt a particularizing approach seeking a stricter identity on scientific criteria. One then finds that a given content of perception is closely linked with certain brain activity which is its necessary condition—it occurs when that activity occurs but does not occur without it. But one should not argue directly from that to a strict identity, in the particularizing sense, between the outer and inner aspects of perception, for there is a disparity. The content is the whole inner aspect while the brain activity is only part of the outer one, and while it may be plausible to identify a person's experiences or their content with activity in him, they can hardly, except in the very general sense

in which aspects are identifiable, be identified with a process extending far in space and even time from the percipient. Hence one has to distinguish perceptual consciousness as a part of perceiving but as a whole activity of the person presenting aspects on the two main modes of access. Its inner aspect is the same in character as that of perceiving, but its outer aspect at the scientific level is brain and perhaps nervous activity, and does not include any processes outside the body. The two aspects can thus be identified in the particularizing sense, and are strictly one and the same event or activity of perceptual consciousness as 'observed' on the two modes of access.

This distinction of perceptual consciousness and perceiving is necessary on other grounds, e.g. there is always the possibility, apparently actualized in hallucinations, that the later stages of the causal process may be activated without the earlier ones; brain activity alone may be the sufficient condition of an activity which is subjectively indistinguishable from perception but which is perceptual consciousness only, not perception, since no external object is involved. Furthermore there is the theoretical convenience that the distinction enables one to discuss the person's mental state or experiences in perceiving without constantly seeming to suggest that they are veridical; one can hardly talk of his perception of a tomato if the supposed tomato is really a piece of wax.

It must be emphasized that perceptual consciousness is a theoretical notion, something conceived from that third point of view which a correlator or philosopher adopts in trying to take into account the various facts and aspects of perception. And although from this point of view perceptual consciousness may be regarded as a mode of experience, as adverbial (unlike perceiving it cannot be a transitive relation with an external object that causes it, for it may occur without any such cause), nevertheless it is *only* from such a viewpoint that it may be so described. We have no first hand evidence of it as just adverbial, as just a mode of experience, and we are not aware of it as being of this character. To the person who is perceptually conscious the content or inner aspect of this consciousness is 'an external object or scene', and if he introspects the experience it still appears as awareness of something external—'I am seeing so and so, or am hearing such and such'. This may be overlooked owing to failure to discriminate

aspects and points of view, or owing to the tendency, already noted, to treat aspects as whole events when seeking identities or causal relations. It is also tempting to describe the inner aspect in general terms as '(awareness of) an external object' instead of more personally as '(I am aware of) an external object'—the words in brackets coming in when there is introspection—and this, though convenient, may be misleading.

(iv) The relation between perceiving and perceptual consciousness is as follows:

(*a*) They are both whole events or activities of a person, presenting two aspects: their inner aspects are indistinguishable from each other; but they differ in outer aspect (at the scientific level), that of perceptual consciousness being certain brain and perhaps nervous activity, while that of perception consists in this activity plus the whole causal chain from the external object that normally causes it. (As the inner aspects are the same in perception of a tree and perceptual consciousness of it, it is reasonable to suppose that the brain activity is the same in both—otherwise the similarity is inexplicable.)

(*b*) The difference between the two, as whole activities, is the same as that of their external aspects, namely that the one is normally part of the other, though it might theoretically occur independently. Perceptual consciousness is a component activity in perceiving; it always occurs within it as an essential part of it. But, and this is the vital point, it is not the whole of perceiving. The error of the Representative Theory was to make this equation; as the result of which it had to affirm that the causal chain from the object was the antecedent cause of perceiving, or else duplicate perceiving so that observation or perception of external objects involved an inner perceiving antecedently caused by emanations from the object. Once it is seen that perceptual consciousness is but part of perceiving, one can maintain, without these ill effects, that it is caused by the earlier stages of the perceptual process, by the rest of perception as it were. This is not a simple causal relation observed on the outer aspect, like that of retinal stimulation causing nervous impulses; its assertion is a theoretical position reached from the correlator's viewpoint, and should be interpreted as meaning: that the causal chain which is perceiving as observed from without ends in brain activity; and that this activity is in itself the outer aspect of perceptual consciousness and strictly

identical with the experience which is the inner aspect of perceptual consciousness and of perceiving.

(v) Perceptual consciousness is, from different points of view, adverbial and act/object in character. On its inner aspect, as experienced by the person concerned, it is an act/object mode of awareness;[1] to him it is consciousness of a distinct external object or scene. But from the correlator's point of view it is a mode of experience of the person, a way in which he experiences; it is adverbial because no distinction of act and object can be made from without, for the whole point of distinguishing perceptual consciousness from perception is that it is supposed to be capable of occurring without causation by an external object. If the subject is perceptually conscious of a pink elephant or 'sees' a burglar when all there is to see is a shadow, then he cannot be in a true act/object relation to an elephant or a burglar since they do not there exist. The non-existence of the objects is admittedly established by someone other than the percipient in most cases, but it is only by adopting the detached point of view of the correlator and by using the evidence of others besides the percipient that one can distinguish perceptual consciousness as a whole activity of the percipient and ask its nature and relation to perceiving. Once it is realized that from this point of view perceptual consciousness is adverbial, a mode of experiencing of the percipient, then one is no longer tempted to supply private objects for it. For the supposition that there are private percepts or sense-data as existents distinct from the percipient, in fact any philosophical theory on the subject, presupposes the evidence and point of view available only to the correlator. As soon as one considers physiological processes or attempts to determine the existence of external objects, or indeed of anything, one leaves the internal aspect, on which alone perceptual consciousness is act/object in character, and must then reassess it. Realization of this dual nature, according to point of view, of perceptual consciousness also disposes of the fruitless controversy between act/object and adverbial analyses of sensing. It should be applied also to allied mental activities such as dreams and mental imagery; regarded as whole events or activities they are adverbial, modes of experiencing of the person, but on their inner aspect they normally allow an act/object distinction. The

[1] 'Act/object' is the usual term, but 'agent/object' would often be more appropriate.

same is true of hallucinations, whether they are considered to be perceptual consciousness or mental imagery.

(vi) The Sentience Hypothesis and the discussions of the last two chapters suggest that perceptual consciousness may vary considerably in type or level, being sometimes close to a postulated sentience and at others considerably modified and far from it. These points are supplementary to what has so far been outlined of the final theory; wherever it comes on the theoretical gradation up from sentience a given act of perceptual consciousness will from the correlator's point of view be a mode of experience; but as grade or level could not be distinguished at present on the outer aspect of brain activity, reliance throughout had to be placed on the inner aspect for illustration and explanation. Indeed it was certain characteristics of the content or inner aspect which led to the hypothesis and range of distinctions, chiefly the discrepancy between percepta and percipienda, i.e. between actual and theoretical content; though even then, in determining error or in estimating the discrepancy, comparison had to be made from a correlator's viewpoint between the inner aspect of perceptual consciousness and the object known to be causing it. But though approached and illustrated thus the Sentience Hypothesis is concerned with what are strictly, i.e. to the correlator, adverbial experiences of the percipient. Perceptual consciousness as a whole activity is supposed to be the result of the modification, to varying degrees and in varying ways, of a basic sentience or mode of experiencing (itself a whole activity, though without inner aspect in practice); both these, and the modificatory process, can also be conceived under the outer aspect of brain activity. But on the inner aspect the lowest form of perceptual consciousness is still act/object in character, and I have suggested that, in so far as any such distinction would then be meaningful, the same would be true of visual sentience,[1] if it could be obtained; its content would have some depth and distinctness from the percipient, or at least it would if we were able to experience and introspect it. This is doubly speculative—not only is sentience in fact unobtainable, but its attainment might prevent introspection and the making of any such distinction. It seems supported by the nature of binocular vision, but its main interest is in making unnecessary the view that sentience or basic sensations must be adverbial to the person

[1] Probably of auditory sentience too, owing to the effect of the two ears.

having them; the brain activity causing them (or rather identified with them) is adverbial, but that is from the correlator's viewpoint; there is no need to suppose this survives change or point of view so that they are on the inner aspect adverbial.

(vii) The recognition of these modificatory activities underlying perceptual consciousness should qualify any description of it as an experience. It is often convenient to refer to it as a mode of experience in order to stress its adverbial character from the correlator's point of view, but this should not be taken to imply that it is passive as the supposed sentience may be. On the other hand simply to refer to it as an activity neglects its experiential side. Perhaps justice might be done by calling it an active experience, but that hardly seems necessary if its full nature is realized.

3. OBJECTIONS AND ELUCIDATIONS: (i) DUPLICATION

Before applying this theory to the various problems of perception I must first answer some objections that might be raised. By this some clarification of the theory should be achieved, and it should be distinguished more sharply from the Representative Theory; this is important, for to some extent I have offered a version of that theory, though one purged of the extra mental realm which was its refuge in difficulty.

At the outset I must emphasize that my theory is an attempt to explain perceiving by giving an account of what happens which covers all the facts and includes such subsidiary analyses and hypotheses as are necessary to render intelligible the processes involved. In this my aim is similar to that of the modern versions of the Representative Theory. I take therefore as a datum the situation where a percipient is perceiving a public object, but this datum might be open to challenge in view of my conclusions. If perceptual consciousness without external cause is indistinguishable in itself to the person concerned from that which occurs in genuine perception, and if the observation which convinces us that there are external objects and causal processes, especially those involved in other people's perception, is subject to a like weakness, then might it not be that all that occurs is perceptual consciousness on its own, and that in our supposed discovery of physical causes we are merely discovering relations between

different states of perceptual consciousness? This would be an adaptation of the classical objection to the Representative Theory that if we are aware only of private ideas we cannot know that they have external material causes; but the best versions of that theory can avoid that objection, and my theory is much less open to that kind of attack than they are. All that the objection can bring against my view is this: as hallucinations occur which completely deceive those who have them, how do we know that we are not in a continual state of hallucination, one so pervasive that we are never aware of external objects at all? This can be raised against any theory of perception; the answer is that the only plausible explanation of the sequence or pattern of these query-hallucinations is that they are (almost all) what they seem to be, namely genuine perceptions of an actual external world. An answer on these lines may also be made to those who, without reference to my conclusions, query my starting point that persons do perceive external objects. In both cases it must be supported by criticism of alternative views such as Solipsism and Phenomenalism, but this has already been done.

The defence I adopt here has some similarity to that developed on behalf of the Representative Theory in Chapter VI, § 4, but there is the essential difference that I need merely claim that the only satisfactory explanation of the pattern of acts of perceptual consciousness is that with a few exceptions they are not hallucinations but are each an integral part of genuine perception of an external object; but the Representative Theory has to go further and claim that each is awareness of the *effects* of an external cause, for as it limits the objects of perception in the first instance to mental ideas, its concern is to show that these are externally caused. This has the dubious conclusion that we are all in error in thinking that we perceive external things and, more important, it means that the theory has great difficulty in explaining the observational evidence about nerves and sense organs on which it relies. In fact it can only escape by duplicating perception and offering us both perception of private ideas or sense-data and perception of external public objects.

Now my theory avoids this root difficulty. I do not admit the existence of any private objects like ideas or sense-data and cannot therefore equate perceiving with awareness of them; all along I assert that perceiving is a relation between the person and public

objects, and so do not deny observation of sense organs and nerves. I do distinguish perceptual consciousness, but only as a part of perceiving not as the whole of it; to say that A is an essential part of B is not to duplicate B. Perceptual consciousness might occur on its own, but then it would not be another kind of perceiving; it would be having an hallucination, or perhaps a dream, and they are not theoretically created duplicates of perceiving. Nor can anyone be said to perceive the contents of perceptual consciousness (or for that matter of dreams or hallucinations), for to perceive anything is to have perceptual consciousness caused by the action of an object on the sense organs—and these contents do not act on the sense organs.

Nevertheless it might be objected that I still in effect duplicate perceiving. I have to allow that the percipient is aware of the contents of his perceptual consciousness, or in another formulation, that he has access to his being perceptually conscious by undergoing or introspecting the experience. As it is not perceiving, this is a second form of awareness—witness my description of the inner aspect as '(awareness or consciousness of) an external object'—and so reduces perceiving to two forms of awareness, that of content and that of external object. After all, a modern Representative Theory could say perception of external objects contained within it a different form of awareness, that of sense-data or percepts.

Omitting for the moment the complication introduced by the parenthesis, my reply would be this. The objection neglects points of view and so does not appreciate the way in which the Representative Theory duplicates perceiving and I do not. That theory produces two forms of transitive or act/object awareness from the correlator's point of view; it adopts that point of view, for it is taking account both of the causal processes and of the percipient's experience; but because the latter is transitive to the percipient, is to him an awareness of objects, the theory assumes it must be transitive in fact, i.e. for the correlator. Hence it has to say the percipient is aware of private existents, ideas or percepts, as well as of external objects; and this leads to the supposition of an extra mental world in which they can pursue their distinct existence (and, even worse, to the supposition that this private world is the only perceived one, any physical world being inferred only). But I have been most emphatic that on my theory, i.e. from the

correlator's viewpoint, there is only one transitive awareness, namely perception, the relation between percipient and public object. Perceptual consciousness is adverbial, a mode of experiencing, not transitive; and the person's access to it, whether by experiencing it or by introspecting it, is also adverbial, an activity in which experience and the experiencing of it are one. There is nothing unique or anomalous about this; almost all mental activities are adverbial in this way—feeling a pain, thinking, having mental imagery, or dreaming. And yet in all of them there is or may be a content which we can but describe as something distinct from us the subject—whether we call it object or image or feeling. In emotions the distinctness may scarcely appear at all, though in a localized pain it is clearer; and in perceptual consciousness it is very marked, partly through the use of cues which seem to make an object stand out and emphasize its depth and distinctness. It just seems a pervasive, and in fact distinguishing, characteristic of any conscious mental activity not merely that it presents two fundamental aspects, but that while on the outer aspect, as brain activity, and to the correlator trying to assess the nature of the whole activity neutral between aspects, it is clearly adverbial, a mode of experiencing or acting of the person as a whole, yet on its inner aspect, to the person concerned, it is the experiencing of a content to some extent distinct from him.

The appreciation of this dual nature of conscious activities of a person is rendered more difficult by ambiguities in terms like 'aware of' or 'conscious of'. They are often used: (*a*) as simple synonyms of 'perceive'—for a transitive relation with external objects which in fact involves causal processes (I am aware of X = I see X); and (*b*) for awareness of content, where there is certainly no causal relation between subject and object, and I am claiming no real transitive one either, e.g. one may be aware or conscious of a mental or dream image or a pain. (*c*) 'Conscious of' at least may be used as a synonym of 'think of', not with reference to any experienced content but to some external object. Thus one may think of, or even be conscious of, a tomato when there is no causal relation between you and a tomato, no tomato present, no tomato seen or felt; yet it is in a sense a transitive relation with an external object. However one analyses (*c*)—and I have suggested that this 'transitive' relation is really one of symbolization between thought-content, vague as that may be, and external object thought

of—it is clearly different from the other two. But confusion can arise: because (*a*) and (*c*) are in some sense transitive and of an act/object nature, one may be misled into assuming that (*b*) is like that too. Also any attempt to describe the inner aspect of perceptual consciousness may be misunderstood, especially if baldly stated as in the parenthesis on p. 293. Influenced by (*a*) one may think that I mean the person really is in act/object awareness of the content of his adverbial experience; and influenced by (*a*) or (*c*) one might think I mean that he is *qua* perceptually conscious of X, thereby in transitive relation of awareness with an external object X; in other words that when I have to describe this aspect as '(awareness of) an external object' it is awareness of an actually external object. But this is to muddle aspects and whole activities. I was attempting to describe the inner aspect, what the adverbial experience is like to the experiencer; but to say he is aware of an actual external object is to pass to the correlator's viewpoint and describe a whole activity. Of course when he is perceptually conscious of a tomato he may be, and almost always is, perceiving an actual external tomato; but he might not be, and anyhow one must be most careful not to muddle perceptual consciousness with perceiving or confuse the 'object' of the former, which is really a content, with the object of the latter, a public physical thing.

4. OBJECTIONS AND ELUCIDATIONS: (ii) CORRESPONDENCE

This does, however, mean that my theory has a basic similarity with the Representative Theory. That theory claimed that private ideas or data represented external objects; I avoid the word 'represent' as too suggestive of pictorial reproduction, at least traditionally as far as certain properties are concerned. But I have to admit that the content of perceptual consciousness does at least correspond with the external object perceived. If one perceives a tomato by having perceptual consciousness of a tomato caused by the actual tomato, then there must be correspondence between tomato *qua* content of perceptual consciousness and tomato *qua* physical object and cause. One could not perceive a tomato by being perceptually conscious of a train. This is not, once again, correspondence of one distinct, independently existing, object with another; it is rather that one perceives an

external object by having a certain activity caused in one, by reacting in a certain way to it, but this reaction must be a mode or way of experiencing and must have some correspondence of content at least with the perceived public object. This is not selling the pass; the only alternative to perception by means of experiential reaction in the percipient, the content (or even the object) of which corresponds in some way to the perceived object, is a perception which is direct confrontation of the object, a wholly immediate awareness of it. But however attractive at first sight, such confrontation has, as I have frequently stressed, to be rejected as wholly incompatible with the facts of illusion and hallucination, with the causal process involved in perception and with the psychological phenomena supporting the Sentience Hypothesis. All therefore that remains is to ask: What in the percipient corresponds with the object? And what does the correspondence consist in? The first has been considered at length; rejecting all private objects or existents, mental or not, whether sense-data, sensations, ideas, or percepts, we have answered 'the content of an experience, but an experience which to the correlator is wholly adverbial'. It now remains to elucidate the correspondence.

In view of the two types of element fused in perceptual consciousness one might expect it to have a conceptual and a sensory side. But in so far as a statement of conceptual correspondence is meaningful, it is merely a restatement of the correctness of the perception; if perceptual consciousness, *qua* recognition or identification, corresponds to its objects, that presumably means that A is recognized as A or that the consciousness which is part of the perceiving of A, or due to A, involves the thought or concept of A. But on the sensory side there seems a much fuller correspondence. One can within the inner aspect of perception or perceptual consciousness, within the scene that is its content, distinguish various objects with parts and properties. And in general the claim of the best versions of the Representative Theory seems admissible, that there are varying types of correspondence between these elements and the macroscopic elements of the actual scene present to the percipient. There is a fairly close correspondence of the main units or divisions, i.e. generally, of objects as distinguished from each other and their background; also of certain properties of the objects, the primary qualities which are mainly spatial. This type of correspondence was originally

thought to be resemblance, but that can hardly be taken literally because of perspectival distortion and perceptual relativity. At the most one could say that the properties of the content correspond with those of the object as projections or transformations of them according to rule; but owing to the working also of modificatory activities there is no simple geometrical relationship, and one has to fall back on vaguer words like analogue or model. Then for other or secondary qualities, such as colour or warmth, there is a lesser and different type of correspondence; there seem to be features in the external objects which vary concomitantly with the content-properties, but which cannot be claimed to be an analogue or have any degree of resemblance. The details vary greatly from case to case, and so any general statement of it must be vague. I have already offered some discussion of this view and will attempt a final assessment later (pp. 315 ff.): my aim here is to consider what a general correspondence of content and external object can mean.

It might be objected, for example, that we can normally assert correspondence only between things which can be observed so as to compare them, whereas here one term of the relation is quite unobservable. If we try to perceive the properties of an external object in order to compare them with the content of perceptual consciousness, we cannot get through to them but only obtain more contents of perceptual consciousness, more experience-contents that is. So any correspondence must be between different experience-contents only.

This objection is misconceived, however, for it neglects the epistemological basis of the theory, namely that it is putting forward a hypothesis as the best explanation of our physical activities, the events of everyday life and the success of science. Even if we try to reduce these activities and events to a series of experiences or rather acts of perceptual consciousness, the only reasonable explanation of their order and sequence is that they are not merely experience-contents but are caused by external objects, normally by those the percipient thinks he is perceiving, i.e. is perceptually conscious of. The assertion of correspondence is basically the second part of this hypothesis, that normally perceptual consciousness of, say, a tomato is an active experience caused by a tomato and is thus part of perceiving a tomato; but the assertion goes further and maintains a correspondence between some at least of

the sensible qualities of the tomato, *qua* content of consciousness, and the intrinsic properties of the external tomato. Here it is relying on scientific procedures, especially measurement and calculation, as an alternative and independent means of establishing these intrinsic properties; the real point of the objection is against this, and is that measurement is a perceptual process merely revealing more sensible qualities.

The answer was adumbrated in Chapter VI and is this: admittedly measurement involves a series of perceptual acts, but the nature of the series, the way the different operations and experiences fit together, and the far-reaching systems that can be built on them by calculation and theory, are all best explained by supposing that measurement does establish macroscopic properties and relations of external physical objects. To take a simple example—in measuring you use your hands and rulers or other instruments, you may even move your whole body to pace off a distance: and this is incredible unless there is involved the coincidence of external objects, something outside inner aspect or experience contents. Also one is not bound to one sense or one kind of perceptual consciousness, for sight and touch can be used; this is important not just in that they confirm shape and size when used directly (for their co-ordination is something learnt and perhaps suspect in this context), but in that they both agree about the coincidence of object and measuring rod. It is these coincidences which form the basis for determining the spatial properties of objects, and they give measurement its independence. Shape as a sensible quality is apprehended by the simple perception of the object (or area) as a whole, but this perception may not enter into, and is not required by, measurement of the object; for the perceptual acts involved in measurement are concerned with the coincidence of parts of the object with marks on measuring rods or the coincidence of pointers with points on a scale. Nevertheless from these coincidences we can work out a spatial order, and correspondence can be asserted in that this order has a fair measure of similarity with the spatial order that can be discriminated within perceptual consciousness of the whole object and its surroundings.

One qualification must be made, however, namely that the correspondence claimed is chiefly confined to literal perception, in which the distorting effects of the modificatory processes are at a minimum and their compensatory ones at a maximum. It may

also be asserted for the more phenomenological types of perception which approach sentience, but there one loses the corrective influence of object constancy and depth cues, though there is some gain in other details. But correspondence will diminish throughout enriched perception as scope for error or imaginative supplementation is increased, and it will also be slight where the percipiendum is vague or ambiguous, as when things are seen at a distance or otherwise disadvantageously.

There may still be felt to be a special difficulty about the personal term of the correspondence, namely how a purely adverbial mode of experience could have a content that is sufficiently spatially ordered and extended to correspond with the spatial order and extension of the physical world. There are two problems here: first of conceivability, based on the assumption that an adverbial experience cannot be spatially extended in physical space; and secondly of mechanism, of the means by which such correspondence comes about. Both difficulties arise *mutatis mutandis* in other theories of perception, especially dualist ones. Thus on the ordinary Representative Theory, the first is that of how mental ideas or percepts can be spatially ordered and extended when mind is by definition non-spatial and unextended; and if, as by Smythies, it is claimed that mind and sense-data are spatial but in their own space, the problem then is of how causal relations can hold between things in different spaces. And the second problem is an analogue of the traditional one of how material processes can cause anything so radically different as mental ideas or sensations.

The problem of conceivability seems greatly diminished on my theory, especially compared with the virtual self-contradiction of the older dualism. I am not asserting the contents of the experience are the effects of brain activity ordered in physical space and so have no need to suppose they are ordered in that space; the content of the experience is the inner aspect of the activity of experiencing, is what it is like to be experiencing in this way, and I can see no *a priori* reason why an experience or activity, which in fact or to the external correlator is unextended, should not to the person concerned be spatial in content. But the assumption involved in the problem is not even valid; for perceptual consciousness, or any other mental activity for that matter, presents an extended outer aspect of brain activity, and so can by the correlator be

regarded as a whole activity occurring in and extended in physical space. This does not mean that the spatial relations discernible in the content of the experience will be part of physical space or relations of elements in physical space, but the spatial character, as a whole, of the inner aspect seems easier to understand if it is the aspect of a unitary mode of experiencing that is itself extended.

The second problem is less tractable, and it is not clear how far it is due to the limited knowledge we possess of the nature and operation of brain activity. One can advance a little way towards its solution perhaps—at least it is claimed by Adrian that a 'cortical map' of the object or scene perceived is set up in the receiving areas of the brain for each of the five senses; and in this way it might seem that there was a correspondence in spatial relations between scene, brain activity and inner aspect. Unfortunately 'map' is misleading in suggesting a simple relationship akin to projection; the brain cannot be said in any simple sense to take on the form of the external scene, as we have already seen (p. 146) from Brain's remarks about the circle, and anyhow activity in more than the sensory receiving areas is involved in perception. It seems then that there is some very complicated transformation into brain activity which we do not as yet understand. And yet even if we could describe in detail the brain activity involved in a given perception, could isolate it and enumerate its conditions and so forth, we might still be faced with the same basic difficulty of how such a pattern of brain activity could either cause or be identical with a perceptual experience. The difficulty might be mitigated by pointing out that it is a relationship of a special and unique *type*, despite the frequency of its examples, and so cannot be understood by comparison with more familiar ones. I might, however, suggest that the great difference in character between the content of the experience and the brain activity associated with it is much easier to understand if they are different aspects of one activity, available on very different modes of access, rather than cause and effect. The difference in mode of access is at least as great as that between seeing and hearing or between hearing and observation by scientific instruments; and we do not feel puzzled that the sound of a thing should be quite unlike its look or that a sound as something heard should be quite unlike a wave motion in air.

It would be relevant here to consider some criticisms advanced

by J. R. Smythies in his *Analysis of Perception* against the early sketch of my theory which appeared in *Mind* (1951). He objects to my identification of the inner aspect of perceptual consciousness with the outer. 'Considerations of neuroanatomy forbid us to identify the complex spatial entities that are veridical and hallucinatory percepts with the spatial patterns of neuronal impulses in the brain concerned in these perceptions.' And if to escape this 'it is claimed that perception is a non-spatial act . . . how can the *spatial* patterns of neuronal excitation be identical with [it] . . .?' (p. 43). The neuroanatomical considerations are explained earlier as being that 'two groups of events arranged in a spatial order may not be said to be identical unless they are geometrically congruent' while 'the events in the cerebral cortex . . . concerned in a particular perception are geometrically non-congruent with the sense-data that these events are alleged . . . to be' (p. 16).

One can accept the latter point that when we are perceptually conscious of a circle, for example, the corresponding brain activity is not circular. But respect for neurology must not make one think that the objection is proved by neuroanatomy, for it depends on a non-neurological and dubious premiss about congruence. Identity only presupposes congruence when events are arranged in the *same* overall spatial order or frame of reference. But all that can be claimed here is that the sense-data or contents and the brain events are each arranged in *a* spatial order, not both in one order or in one kind of order. But what is physically one and the same object or event may have a position and dimensions in two different spatial orders, and there will then be no congruence between the shapes and dimensions in the one and those in the other, though there may well be a correspondence. Thus one and the same object may look round from one position and elliptical from another, but the round and the elliptical shape can hardly be said to be congruent; the point is that the different views or aspects of the scene, in one of which the object appears as round and in the other of which it appears as elliptical, are in effect different spatial orders or frames of reference. But the difference between the inner aspect of perceptual consciousness, regarded as one spatial order, and the outer aspect, regarded as another, is greater than that; for they are revealed not just from different points of view on the same mode of access, but on different modes of access. Nor do I have to claim that each element within the inner aspect is identical with one

within the outer; the principles on which we could discriminate minute elements in each may well be so different as to make any detailed identification like that impossible. All I need to assert is concomitant variation and identity between the inner and outer aspects of a given act of perceptual consciousness as wholes. But in fact there does seem to be a fairly close correspondence of discriminable elements, so far as sight at least is concerned (see p. 212 above); though owing to the difference in modes of access the corresponding elements differ in character and in spatial and other relations to associated elements within their own aspect.

I may add that I do not accept the second horn of Smythies' dilemma which is to claim that perception is a non-spatial act.

He also objects that I do not 'explain how "the person concerned" is related to his own brain activity. If we interpret "person" to be a synonym for "total organism" or "whole brain", there is no reason why certain patterns of neuronal activity in the brain should seem to the organism, or to the brain, to be parts of external objects or an awareness of external objects: [it is not even clear] what it means to talk of the "awareness" of an organism or brain, or of "seeming" in connection with an organism or brain in this sense. And if "person" does not mean "total organism" or "whole brain", it cannot mean anything in this context. . . .' (p. 43).

It is essential here to distinguish the point of view from which one is speaking. From the external observer's point of view the person is the total organism, body and brain, and awareness or perception of external objects is simply to have brain activity of a certain kind caused by them. From the correlator's viewpoint, which is the one as philosophers or theorists we want to adopt, the person is the organism, but this is a grave understatement; he is a self-conscious organism, one that experiences. This very important addition, which takes us beyond the purely external viewpoint of physiology, makes it sense to talk of the person as aware or perceptually conscious. As a correlator one recognizes that such awareness is a whole activity presenting an inner as well as an outer aspect, and it is therefore misleading to speak of the brain as perceiving or being aware, since to stress 'brain' is appropriate only to the description of the outer aspect.

As to there being no reason why neuronal activity should seem to be parts of an external object or awareness of it, I never said that it did. It is the perceptual consciousness, as a whole activity neutral

between aspects, that seems to the person to be awareness of an external scene or, better, presents an inner aspect thus describable. And I am not sure it is sensible to ask why it should do this—at least it is not clear what sort of answer would satisfy. One might say, 'because it is normally part of perception of an external scene, or is normally caused by it; hence it is biologically useful that it should'. Or if the mechanism by which it does this is sought, we have already discussed that. But perhaps all one can say is 'It just does', and if that is not enough, reply with a '*Tu quoque*': there is equally no reason why the brain activity should *cause* a mental experience of that nature.

5. CONCLUSIONS

I must now attempt to give my final answer to the various questions raised in this book. Where conclusions have already been reached I shall give a brief summary with references; but much of this section will be devoted to explicit statements of solutions which have only been hinted at or implicit in what has gone before. I shall first review the common-sense assumptions outlined in the first chapter and then go on to discuss the problems raised.

The three main assumptions were: (i) The publicity assumption, that a person is one entity in and interacting with a world of public entities and events, and that perceiving is a relation between a person and public entities and events by which he discovers their existence and characteristics. (ii) Perceiving is a simple direct confrontation of the person by the object of his perception; this has been developed by many philosophers as the claim that perception is or involves an always excellent immediate awareness of an object. At the common-sense level, however, it is qualified by the belief that perceiving can also vary in quality and accuracy, though a possible clash between this and the confrontation assumption is not recognized. (iii) Though initial mistakes are possible, we can after various checks ascertain with certainty the identity and real characteristics of most of what we perceive.

I have maintained the publicity assumption all through the book, defending it first against the philosophical arguments from illusion and hallucination, which attempted to show that we perceive or are in some superior sense directly aware of private existents or objects, and secondly against scientific attempts to

show that perceiving must be awareness of a private world and lie at the end of the causal chain from object to brain and mind. In my final theory I therefore identified perceiving with the whole causal process and made use of a new account of the relationship of body and mind.

The second assumption, by contrast, has been continually attacked and has been rejected both in its simple form and as the philosophical immediacy claim. Direct confrontation with, or immediate awareness of, an external object is rendered impossible by the causal processes involved in perception; while the claim that it occurs with private mental objects is very dubious in view of misperception and of the variety and complexity of the modificatory processes which seem to underly perceptual consciousness. And the assumption prevents one from giving the simplest and most plausible explanation of the relativity of perception, and thus leads philosophers into the unnecessary postulation of private entities. Against this we developed the contrary tendency in common sense to recognize that perceiving is variable in quality and accuracy. A hypothesis on these lines provides a more plausible explanation of perceptual relativity and does not clash with the physiological or psychological evidence.

To the final assumption I have only been able to give a very qualified support. In Chapter V, § 5, I concluded that if 'certainty' is taken in its strict and traditional sense of absolute certainty without any possibility whatever of error, then we cannot admit the claim of any perceptual statements to certainty; but that whereas this high standard is appropriate to *a priori* statements it is unwise to demand it in empirical statements which are of a radically different type—if we did demand this we should be left with no certain statements about the world except a few truisms and should have to invent a new pair of words to perform the present functions of 'certain' and 'uncertain'. A second type of certainty should therefore be distinguished for empirical statements: it is established when saturation point in the evidence is reached, i.e. when the statement has passed all conceivably relevant types of test and no further ones would then be of any use. A complete empirical verification of this kind would take some time, though it seems possible enough. (For practical purposes a close approximation could be reached quickly by ruling out the common types of illusion and hallucination; but

practical certainty of this or any other kind must not be confused with the strict certainty required in philosophy, even if the latter be extended to include the empirical certainty I suggest.) To admit the certainty of various perceptual statements is not, however, to admit the truth of their commonest interpretation; and our support for this final assumption will have to be further qualified by a reinterpretation of statements about perceived properties, especially 'real' ones.

The various problems I outlined in the first chapter were:

(i) The untrustworthiness of the senses which seemed to make absolute certainty unobtainable.

(ii) The difficulty of explaining what we are aware of in illusions and hallucinations, especially if we assume all perception is of public objects.

(iii) The relativity of perception to the percipient and the situation; does this mean that sensible qualities are really subjective, especially those that do not occur in the scientific account of matter?

(iv) The causal processes, which are necessary to perception and which may take an appreciable time, render a comprehensive explanation of perception very difficult and have encouraged unsatisfactory dualist theories.

(v) The problem of the inter-relation of mind and body must be faced.

(vi) The part played by mental factors in perceiving must be investigated: how far is what we see dependent on expectation, attention or past experience?

No more need be said on the first problem since it raises exactly the same issues as the third main common-sense assumption. But my discussion of the second in Chapter II, in which I defended common sense against the Sense-datum Theory, posed certain further problems which could not be disposed of until the physiology and psychology of perception had been dealt with. Hence (ii) may be replaced by:

(vii) The nature of mental images and their relation to perception; this should form the basis of a revised account of hallucinations.

(viii) The explanation of the relativity of perception in terms of its variability requires consideration of the latter notion.

The third problem has also developed in scope beyond the

original discussion in Chapters II, § 5, and VI, § 5; further consideration of the nature of sensible qualities is needed in the light of my final theory. It will also be convenient to depart from the original order of the problems and to discuss, first, (v) and (iv), second, (vi) and (vii), and third (viii) and (iii).

I start with problem (v) because my final theory is based on my conception of the relation of mind and body. In Chapter VII, after rejecting the popular Interaction Theory on various grounds, I proposed a version of monism which may be classed as a Double Aspect Theory, but on a more accurate sub-classification should be called an Identity Hypothesis. It is that all mental activities are activities of the person, the self-conscious organism, as a whole, and that (unless unconscious) they present two aspects: an inner one, which is available only to the person concerned by performing or introspecting the activity, and consists in various experiences, feelings, imagery and so on; and an outer one, available to external, especially scientific, observation and consisting primarily in the corresponding simultaneous and concomitantly varying brain activity without which neither the whole activity nor the experience occurs. The experiences and the brain activity, *qua* aspects of the person's thinking, deciding, feeling or imagining, *are* his doing this, as revealed to himself and external observers on different modes of access. But this is true in a particularizing as well as a general sense, so that the experiences and correlated brain activity may be identified with each other, though it should not be forgotten that they are still different aspects of the one whole event or activity. They may seem to be different whole events—and it may be convenient to speak of them as such—but this is only because of the radically different modes of access to the person's mental activity by which they are revealed.

The fourth problem, closely linked with this, is the most difficult one facing any theory of perception, and its implications for the other problems are so extensive that it must be given a central place. The most thorough and persistent attempt to deal with it has been the Representative Theory, and this has been underestimated by many philosophers who have too readily dismissed it as self-refuting. That serious charge can be avoided, if the theory is offered not as demonstrated truth but as the best hypothesis to explain the manifold facts of perception, and if

scientific observation of the external world is thereby validated; but even then the theory is open to important objections. With the aid, however, of a different conception of the relation of mind and body, it is possible to supersede it; and I have suggested a theory which in its final form may be summarized as follows.

Perceiving is a relation between person and public object in which a mode of active experience, perceptual consciousness, is caused in him by the stimulation of his sense organs by the object or by emanations from it. Both perceiving and perceptual consciousness are neutral between and present two aspects. The inner aspects of the two are indistinguishable and consist in awareness of an object or scene as external; thus though we, as correlators, must regard perceptual consciousness (but not perception) as adverbial, a way in which the person is active and experiences, to him it is of a transitive, act/object, nature and in it an object or scene is presented. The outer aspect of perceiving at the scientific level is of a causal chain from object to brain *via* the sense organs—but no further. The scientific outer aspect of perceptual consciousness is the same brain activity as in the corresponding perception, or is closely similar to it, but without the rest of the causal chain (though there may be some nervous activity as well). In both cases the brain activity is supposed to be complex and not limited to the sensory areas, thus forming the outer aspect of the sentience and modificatory activities which are postulated as component activities out of which perceptual consciousness is formed. This postulation is necessary in order to explain misperception and the effects of attention, expectation, past experience and background on perceptual consciousness. In perception generally there is correspondence, varying in type and degree, between the properties distinguishable in the inner aspect or content of perceptual consciousness and those of the external object causing it; and this correspondence, though normally assisted by the modificatory activities, may also be reduced or obliterated by them. The properties of the external object may then be misperceived, or misidentification may even occur through the thought of object A being fused with the sentience due to object B. Perceptual consciousness is never the whole of perceiving, but is normally part of it. There may occur without external causation, however, either perceptual consciousness or some activity closely resembling it in inner and outer aspect. If

such activity is not distinguished from externally caused perceptual consciousness, the subject will have an hallucination—but this will be discussed further.

Though this theory affects the solution of all the problems of perception, I may briefly here indicate its application to the time-lag problem before passing to more important questions. It must now be accepted that perceiving, as well as the causal process which is its scientific outer aspect, may take a considerable time. But perceptual consciousness and the brain activity identified with it do not; it may take a brief imperceptible time for the modificatory activities and corresponding brain activity to develop, and of course consciousness of a given object may continue for a while —but that is a different point. Strictly then we should say seeing a distant star may take years or hearing distant gunfire takes an appreciable time. This sounds very paradoxical because ordinary language and notions have not taken account of the facts; perceptual consciousness of the star is almost instantaneous once the sense organs have been stimulated, and so one might in these circumstances avoid the paradox at the cost of ambiguity and equate perceiving with it, but that would be theoretically very unsatisfactory.

The second group of topics for final consideration was that of the mental processes involved in perception and of the nature of hallucinations. This grouping is merely for expository convenience in that the discussion of the former in Chapter IX throws new light on the latter. There is no need here to repeat the fairly full summary of Chapter IX (given pp. 276–7), but I should draw attention to the final part of it. The Sentience Hypothesis does not merely claim that perceptual consciousness is due to the modification of a basic sentience by several types of activity; it claims also that different types or levels of perceptual consciousness may be distinguished according to the type and extent of these activities, and that these types are not sharply distinct but may be regarded as forming a gradation from transformed perception down through enriched and literal perception to phenomenological observation. It is this gradation that should be borne in mind in reconsidering hallucinations.

I must first recall my provisional attempt to deal with hallucinations at the common-sense non-scientific level at which the argument from them is usually discussed. After distinguishing

them from extreme cases of 'illusion' or distortion, such as mirages, and from private sensa, such as spots before the eyes, I suggested that they were vivid and often eidetic mental images which were confused with public objects, a confusion greatly assisted by background phenomena, e.g. disease or nervous strain, which heighten the vividness of the imagery and lessen the powers of discrimination. This meant that common sense could challenge the claim of the Sense-datum Theory that both hallucination and perception involved awareness of the same kind of private existent, but the status and nature of mental images, or even of private sensa, was left unexamined. This was allowable in its context, but a comprehensive theory must examine them; it should also attempt to explain certain features, such as the occasional apparent integration of hallucinations and perceptions in one experience, about which common sense can say little. The omissions were partially rectified in Chapter VII where it was suggested that imaging or having a mental image presented two aspects like other mental activities, an outer one of brain activity with probably some nervous activity also, and an inner one which is very variable, ranging from vague motor imagery to speaking to oneself or to awareness of some scene or object. (Originally I said 'seeming to speak' or 'seeming awareness', but it should be clear from later discussions that that is pleonastic if one is describing *aspects*.) One can also say from the correlator's point of view that having a mental image is an adverbial mode of experience, though act/object in content where the content of the inner aspect is sufficiently definite. And further material was provided in the theory of the nature of perception with its indication of the theoretical possibility that perceptual consciousness might occur without external causation. But this was not then extended to provide a full account of hallucination.

The main key to a unified theory lies in a continuation of the gradation noticed within perceptual consciousness. I have already suggested on p. 263 that, especially if sentience is weak or vague, perceptual consciousness may be so enriched by modificatory activities that the latter become dominant and 'transformed perception' is reached. Now this seems to take different forms according to the nature of the enrichment and to the amount of control involved. Thus if the supplementation is mainly conceptual it will be thought of the object or judgments about it that will fill

consciousness, e.g. when we make rash identifications on no definite sentience or possibility of literal perception, when something vaguely heard or seen may set off a train of thought, or when in reading we are absorbed in the meaning of what is read. More apposite here is the possibility that the supplementation may be imaginative—that perception may induce or be merged in imagery. Thus visual imagery of an object may accompany and outweigh hearing its sound or reading about it, and the misidentification may be more of a 'seeing' of the person than a judgment or assertion. Now once mental imagery has become an enrichment of perceptual consciousness in this way, it seems reasonable to suppose that there are further cases in which the sentience element is quite overlaid or overwhelmed by imagery, especially if that is of the strong eidetic kind. And thus there is a continuance of the gradation up to the limiting case in which free pictorial or eidetic imagery occurs without any element of sentience or external causation. Pure imagery is usually easily distinguishable from perception by lack of vividness, more liability to subjective control and so on, but it will not be so easy to distinguish it from those states of transformed perception close to it on the gradation; and this will particularly be so when the imagery is eidetic, and thus can be experienced with the eyes open and is projected on the external scene, or when its vividness is enhanced by factors such as anxiety, expectation, drugs or fever, which will also reduce one's critical powers.

Our original suggestions about hallucination have thus been unified with the general account of perceptual consciousness. Some hallucinations will be pure vivid imagery, especially eidetic imagery, confused with perceiving. But others, where there is a small element of perception or external causation, will be at the margins of transformed perception, indeed one might then say that perception or sentience has been transformed by imagery into hallucination. Thus there are 'integrated hallucinations', as when the drunkard 'sees' pink rats, which occupy virtually all his attention, on a background of a real bedstead; and there are what I have called 'triggered hallucinations' among which one should probably include cases of soldiers 'seeing' the enemy at night; these are set off by something in the external scene of which one is not aware at the time and may resemble dreaming that one is on an Antarctic expedition because the eiderdown has fallen off. Dreams

indeed seem very closely similar to hallucinations and it is only that they occur in sleep that distinguishes them and keeps them out of the suggested gradation.

This type of explanation may seem unplausible, but only I think if one is assuming some very different theory of perception or concentrates on literal perception. That there should be this extended gradation presents no difficulty on my theory, for perceptual consciousness and vivid mental imagery possess important common features and so may easily merge or be mistaken for each other; thus to the correlator they are both adverbial experiences, on the inner aspect they are both of objects or scenes, and on the outer they are both complex patterns of brain activity. And one may explain the subjective similarities by supposing that there are similarities in the brain activity, indeed, as has been suggested, the imagery may in its elements at least be a reactivation of past perceptions.

A gradation does, however, present the problem of where to draw the line; the difficulty is where one should set the limits of perceptual consciousness. If we try to distinguish it by the inner aspect alone, as characterized by awareness of an object or scene or by 'taking for granted' that a material thing is present, then it will have to include vivid hallucinatory imagery and realistic dreams which are thoroughly convincing at the time. This would seem an undue extension of the term, and so it seems preferable to adopt the correlator's viewpoint and add an extra criterion of external causation; the problem then is the overlap of hallucination and transformed perception. Can we state the criterion so as to exclude the 'triggered' hallucination or dream and yet include misperceptions? Despite some vagueness it would perhaps be best to require in perceptual consciousness that the inner aspect is of some object that has a general resemblance to the actual external object or cause; or rather, in view of the difficulties about correspondence or sensible qualities, the inner aspect should resemble the inner aspect of literal perception of the external object or cause in the same situation. Thus mistaking wax for tomato or a bush for a man in the fog will be included, since the wax imitation is very like the tomato and the bush is of such a size and shape as to look not unlike a man *in a fog*. But ghosts where there is nothing to see but a moonbeam, or hallucinatory pink rats on real beds, would be excluded. One can hardly hope to find a really precise

distinction that would be proof against all marginal cases. This recommended criterion of perceptual consciousness would, however, qualify the suggestion in the final theory that perceptual consciousness might conceivably occur without external causation. This is still true in that the same (or similar) brain and nervous activity may occur as in perception but without external cause, and hence that the associated experience might be subjectively indistinguishable from perception; but we should then say that it is an hallucination, eidetic or vivid imagery, not perceptual consciousness.

Two final notes: in the first chapter the problem was posed of what we are aware of in hallucinations, what we see in them. At a common-sense level the answer 'mental images' was suggested, but this should be expanded to cover the ambiguity noticed in 'aware of'. If it is meant as a synonym of 'perceive', or if one is asking what the person sees, not what he 'sees', then the answer is 'nothing'. This is obvious enough where there is no external cause, but applies also to the triggered hallucination, for the victim is not perceptually conscious of the 'trigger' or anything resembling it. But if 'aware of' is to be regarded as referring to the inner aspect of the experience in question, then the answer will be 'pink rats' or whatever it is. In this context, however, probably neither of these common alternatives is meant, and the questioner is asking for the correlator's explanation of the experience. The answer that it is a form of mental imagery is correct as far as it goes but needs the supplementation now given to it.

The other point concerns private sensa, e.g. after-images or ringing in the ears. They are from the correlator's viewpoint adverbial experiences caused from within the sense organ and not by an external object. In status they will be not unlike the postulated sentience, but will differ markedly in content for they have a much cruder and less differentiated cause and will not vary with movements of the body or sense organ as would sentience. Hence they are much less likely to be enriched by similar modificatory activities and to result in an activity mistaken for perception; but it is reasonable to suppose that this might occur and might be a source of hallucination.

The question of the variability of perception need not detain us long. It will be remembered that I proposed to solve the problems raised about the relativity of perception in the so-called argument

from illusion by supposing it due to variations in the quality and accuracy of perception, thereby avoiding the postulation of varying private objects. The nature of the variation in any particular case depends on the relevant type of governing factor, e.g. (i) position of the person and object, distance and angle of sight, (ii) the intervening media, (iii) attention or inattention, and (iv) sensory defects and influences such as double vision, short sight or drugs. All that remained was to explain how these factors worked, and a brief general indication of this can now be given. Those in groups (i) and (ii) clearly affect the percipienda or theoretically apparent properties of the object or scene, and they do this by affecting the stimulus (i.e. the pattern of light or sound waves striking the sense organ), and hence the resultant nervous and brain activity with its correlated sentience. Despite some compensation by the modificatory activities, the resultant perceptual consciousness will often be appreciably affected in content; properties discernible in the content will correspond less well with those of the object than those of the content of perception in optimum circumstances. Factors in groups (iii) and (iv) are more personal and subjective and affect later stages in the whole process: (iii) directly affects perceptual consciousness by being a matter of the scope of certain selective and modificatory activities underlying it; and (iv) though not affecting the stimulus proper, does influence the response of the sense organ and subsequent stages to it.

Lastly we must consider the nature of sensible qualities. As originally posed, the problem was that the relativity of perception suggests that such qualities are subjective and that we cannot grasp the real properties of things by the senses. Common sense can successfully meet this argument by stressing the variability of perception, provided that the question is treated from the position adopted by the Sense-datum Theory and some other modern philosophies, namely that perception is prior to science and that its main problems may be settled without invoking scientific evidence. But once one seeks a truly comprehensive theory which will make use of science and attempt to explain the perplexing features of the causal processes involved in perception, the relativity argument comes into its own again as we saw in discussing the Representative Theory; granted the general position of that theory as an explanation of the causal process, the relativity of perception requires us to treat all sensible qualities as in the first instance qualities of

percepts and to that extent subjective, but allows a distinction between primary qualities, which also characterize external objects, and secondary, which do not. And even apart from that, the existence of measurement does find a ground for some such distinction within qualities. Although I do not accept the Representative Theory, my own attempt to explain the causal process has led me to a position in many ways closer to it than to common sense—in fact one of the theses of this book is that common sense can survive the ordinary arguments from illusion and hallucination unscathed but has to be modified once the physiological and psychological process involved in perception are considered. Thus one view which might be attributed to common sense, has to be rejected; it is that the colours and shapes that we see, and sounds, smells or warmth, are all intrinsic properties of external objects, i.e. that objects possess them just as we perceive them (or at least as we perceive them in optimum circumstances) quite independently of our perceiving them. But that would mean that perceiving was an immediate awareness and a direct confrontation with the object as it is, a view which we have constantly rejected and which can scarcely deal with the relativity of perception let alone the physiology and psychology. And though there is an opposing trend in common sense, namely the admission of the variability of perceiving, any attempt at an explanation of how variability occurs must involve considerations of the causal process and consequent rejection of the intrinsic-property view.

The nature of sensible qualities must therefore be considered in the light of my general theory, and we may attempt this by asking what can be meant by saying that X is really red and rectangular. (Not of course what people in fact mean by such expressions, for that may be confused or based on an untenable theory; rather—what can legitimately be meant granted my general theory of perception.)

In the first place, in saying that an object X is red and rectangular the percipient may be held to be describing the inner aspect of his perception of X, the content of his experience in perceiving X. It should not be said that he is describing a red sensation or colour experience; for to speak of his perceptual consciousness as an experience, i.e. as adverbial, or as made up of sensations, is to speak from the correlator's viewpoint; and from that, the consciousness is neither red nor not red, for such terms

apply only to objects of perception and the consciousness cannot be perceived except under the aspect of brain activity or behaviour, where different terms are required. Moreover, the inner aspect is of an act/object nature; to the percipient it is not a sensation or adverbial experience, but is (awareness of) a red rectangular object X (or, in phenomenology, a red rectangular shape, but that is still public and external as presented).

This answer will hardly satisfy, for we want to claim more of our descriptions, namely that an external object is in fact red and rectangular; and on my theory one can to some extent meet this demand and progress beyond contents. One can say that the external object is such that the inner aspect of perceiving it is of a red rectangular object, or that the object has the property of causing perceptual consciousness with that content or inner aspect. On this basis one can also interpret the distinction between 'looks' and 'is'. 'The object looks red' amounts to saying that the perception of it has on this occasion an inner aspect which we may describe as (awareness of) a red object; while 'the object is red' would mean that perception of it has this inner aspect in normal or standard circumstances. (Both these could also be put in causal language.) And from this one can derive a meaning for 'real' as applied to colours, sounds and the traditional secondary qualities; 'real' emphasizes 'is' as opposed to 'looks', and so to say that the object is really red requires the same interpretation as 'the object is red' has just been given. The main difficulty is in deciding what normal or standard circumstances are, but the rough meaning is clear despite the danger of marginal cases; for colour it means 'in a good light, preferably daylight, and from fairly close to, and when the percipient is medically normal as regards eyesight, e.g. is not suffering from colourblindness or similar defect'.

Similar accounts can be given for the other qualities. We can also bring 'real' into the description of the inner aspect and can say that the object's real colour is its colour as discernible on the inner aspect of perceiving it in such circumstances. But no more seems possible for such qualities; we can think of red in two ways, as a quality of the content of perceptual consciousness, discernible on its inner aspect, or as a causal property of the object to a large extent determining the inner aspect of perceiving it. The former will not be intrinsic to the object or really be a property of it at all; the latter may be supposed to be intrinsic to it, but by perception

we can say no more about it—it is defined and known solely in terms of its effects. But we must not muddle the two and say that the red as we see it, as a part of the inner aspect, is an intrinsic property of the external object.

More can be said about spatial properties, however. Just as for red or loud, one can distinguish the shape and size as sensible qualities of the object within the inner aspect of perceiving it, and as causal properties of the object which with other factors such as distance determine the inner aspect. Thus 'X looks rectangular' may be held to mean that X is such that the inner aspect of perceiving it is (awareness) of a rectangular X, and 'a rectangular X' would describe the inner aspect or content of consciousness. But though 'X is rectangular' might be interpreted on the same lines as 'X is red' by reference to the inner aspect of perceiving X in standard circumstances, it and especially 'X is really rectangular' can be given a meaning more satisfactory to the demand for intrinsic properties. The reason has already been given (p. 298), that by measurement and calculation we can establish spatial properties of external objects independently of the content of any single perception. Normally this can be done simply by means of reasoning from a few readings but it may require a formidable apparatus of scientific theory based on a large number of measurements and observations. The essential claim is that it is only if these processes are admitted as establishing intrinsic properties of external objects that we can plausibly explain the order and sequences of the perceptions involved in carrying them out or in successfully applying their result. The properties thus discovered are not affected by perceptual relativity because their apprehension is independent of and does not require a simple view of the object as a whole, and these points confirm their objectivity. It is important to avoid confusion here. One can see the rectangular shape of the object as well as one can see its red colour, but all that that in itself can show is that the object is such that the inner aspect of perceiving it can be described as 'a red rectangular X'; the causal and psychological process in perception, its relativity and the possibility of similar consciousness without any external object in dreams or hallucinations, all force a theoretical distinction between the inner aspect or content of an adverbial experience and the intrinsic properties of external objects. But equally it seems the most plausible theoretical position that one can by measurement

and calculation get beyond the content of an adverbial experience to establish intrinsic properties.

There are of course many intrinsic properties discovered by science which are not merely causal ones, e.g. molecular or atomic structure. These are a corrective to any tendency to think of physical objects as unknowable things-in-themselves, but do not concern us here for they are hardly perceivable. Chiefly relevant here are macroscopic spatial properties, though motion at least may be added, while number is presupposed. It is only the general principles here that I wish to discuss. The objection might perhaps be raised that the intrinsic properties claimed are really relations between objects and are not their actual qualities, e.g. 'a yard long' is relating the object to a standard. But this has little force. It is only for precise numerical statements of length that you refer the object to a standard: its length as physical extension is its intrinsic quality: this is what is measured and is presupposed by the relation. And shape, for example, does not even have to be stated in terms of some other standard object: it may be expressed by internal geometrical relations.

Once intrinsic scientific properties are admitted the next step is to claim correspondence between some of them and certain content-qualities or qualities as presented on the inner aspect. So far as spatial properties, number and motion are concerned it seems reasonable to claim a close correspondence in two ways. First a general resemblance. Within the inner aspect or content one can distinguish up and down, right and left, slant and curvature, depth and distance, rectangular and other shapes, A larger than B, A behind B, A moving across B, C having two legs and so on. All these properties and relations can be matched by similar ones intrinsic to the external object or objects: there are some differences, especially if we express the latter precisely on a co-ordinate system, but there seems no radical difference in character. Secondly, in some cases there seems to be an exact correspondence, e.g. when a rectangular object is seen in favourable circumstances we should also wish to say that the object as presented on the inner aspect is rectangular—there seems to be a close agreement of shape. In other circumstances the content-shape will be a projection or analogue. Of course this is not to say there is anything rectangular in the person's head, still less anything three feet long; one is only asserting an exact correspondence or

close resemblance. This should be easier to understand if it is realized that the resemblance is of relations between elements—the structure is the same or similar, but not the actual physical extension. Although I have just claimed that external objects possess physical extension as a property, they have, in virtue of this, various relations internally between their edges, sides or diameters and externally to other objects. And it is this pattern of relations, form or structure, which seems reproduced in the content or inner aspect; in favourable circumstances the content seems isomorphic with the external object or scene,[1] but it does not have the same physical extension any more than a map has the same physical extension as the country whose form it reproduces: but even a map has some physical extension in the same space as the country, and it is dubious how far anything like that can be claimed for the content (cf. pp. 299–300).

All this is in marked contrast to the relation between most other sensible qualities, e.g. colour, sound, warmth or smell, and the intrinsic object-properties, for in such cases there is no close correspondence and nothing at all like isomorphism. If science investigates the perceived external objects and the causal process, it can find light and sound waves varying in frequency with sensible colour and pitch, but not only do these not resemble colour or sound in any way but they are not object properties. One can attribute to the object the causal property of emitting or reflecting certain light waves or of emitting sound waves, but this is merely a property defined in terms of its effects: and if one tries to get at the intrinsic properties responsible for this, one finds explanations in terms of microscopic or atomic structure or moving membranes—spatial properties again. One cannot of course absolutely disprove the supposition that there are intrinsic properties resembling sensible colour, warmth, sound or smell: but they can hardly even be conceived in scientific terms, quite apart from there being no evidence for them. One can only assert close correspondence in the other cases because science has provided independent grounds for there being intrinsic corresponding properties; so in the absence of scientific support there seems little justification for extending it to colours sounds and the like.

[1] Not to be confused with the isomorphism the Gestalt Psychologists claim between *brain patterns* and experienced content.

The conclusion then seems to be that we can allow a further meaning to 'real' as applied to spatial and associated properties. The real shape of an object, for example, is its intrinsic shape as established by measurement, calculation and, if necessary, mathematical and scientific theory. And we can allow the claim to perceive the real shape of a thing in this sense; it will mean not just that the object is perceived in standard circumstances, but that the object-shape on the inner aspect or within the content of perceiving is isomorphic with the intrinsic real shape of the object. But when we see the apparent shape it does not agree so exactly, although it is still a projection or analogue.

The traditional doctrine of primary qualities has thus been rehabilitated to a fair extent, though I avoid the name here as there are still some differences. I have not claimed, as Locke does, that 'solidity' is an intrinsic property of objects or that the intrinsic properties continue to be present however much matter is divided; and I have sought to allow, as he does not, for variations in sensible shape. But the essential points are there, that intrinsic properties can be established scientifically and independently of the relativity of perception, and that there is a close resemblance between some sensible qualities and corresponding scientific properties at the macroscopic level.

If this rehabilitation, or my theory as a whole, is unwelcome, I can only ask how else the evidence can be interpreted. One cannot just ignore the causal process and scientific findings; and the Berkeleyan or Phenomenalist attitude to them has been dealt with, as has the Representative Theory in its various forms. And one can now see that the scientific account of perceiving cannot simply be dismissed as complementary and innocuous to ordinary notions. It claims superiority, and if it is correct it undermines common-sense beliefs and the 'ordinary language' which presupposes them. The realization of this is all the more important because of the extent to which common sense can be defended against non-scientific philosophical theories. But as soon as one tries to understand how perception occurs, even how it can be variable in quality or what its relation is to mental imagery, for example, then one is forced by the scientific evidence of causal processes and the psychological evidence of modificatory processes, into the Representative Theory or into some theory like mine on which we perceive an object by having an experience caused by its acting

on our sense organs. The content of that adverbial experience, the inner aspect of perceiving or perceptual consciousness, is 'an external object with such and such qualities'; but the theoretician must distinguish that content from the actual external object, and if introspectively the inner aspect or content is describable as 'awareness of such and such an object', then that awareness must be distinguished from actual perceiving. So considered as a method of discovering the properties of an object, perception has serious limitations, and in this there is also a qualification to the claim to empirical certainty. Perception can readily reveal the object as it is to human beings, i.e. what the inner aspect of perceiving it is like, but that is only a significant discovery of intrinsic properties of the object when there is close, preferably isomorphic, correspondence. Scientific investigation, on the other hand, can claim to establish not only a range of intrinsic properties but also the grounds for asserting such correspondence; for it is not subject to the limitations of a single perceptual act, but relies on a series of perceptions for whose character and complex inter-relations it offers the best, or even the only plausible, explanation.

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